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NASAL SINUSITIS IN CHILDHOOD*

BY

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Since nasal accessory sinusitis is almost always the result of colds, other upper respiratory infections such as influenza, or the exanthemata, it is proper to emphasize that the avoidance and correct treatment of these conditions are of the utmost importance.

Children often manage to escape with few infections during their early lives, but it is common to find that their first year or so at school is constantly interrupted by colds. This is scarcely to be wondered at, for it is at school that they first encounter the millions of organisms which exist where people are herded together. In such places as schools, trains, and cinemas it must be almost impossible to breathe air which has not already been in and out of someone else's lungs or which does not contain droplets from the coughs and sneezes of those who have colds. So far the human species has not been able to develop an innate immunity to the organisms that cause upper respiratory infections. It has scarcely had time to do so; for, bearing in mind the history of mankind, it is only recently that people have lived in such close proximity to each other. At a children's hospital such as that of Great Ormond Street it would not be an exaggeration to say that one-third of the patients are suffering from disease which is the result of inhalation of micro-organisms.

Frequency

How frequent is sinusitis in children? That it is common in the early years of life has been demonstrated by many different workers. J. H. Ebbs (1938) recently published the results of the examination of the sinuses of 496 children post mortem. He found disease in 152 instances, or 30.6 per cent. Other investigators have submitted a series of children to antrum puncture: by this means Mollison (1922) observed that 22 per cent. had muco-pus in the antra, and Carmack (1931) 30 per cent. In a series of 100 children at Great Ormond Street I found that twenty-four had muco-pus in the antra (Crooks and Signy, 1936). All these children were from a tonsillectomy list, and obviously had something wrong with their noses or throats, or they would not have been undergoing that operation. Since it had been said that removal of tonsils and adenoids cures sinusitis in children, and also that the condition is only temporary, I punctured the antra of these twenty-four children again six months later to test these statements, and still fifteen of them had muco-pus. Therefore neither of these statements is true. During last year antrum infection was proved by exploratory puncture in over 500 children at my out-patient department, and approximately the same figure applies to several preceding years.

We have been slow to recognize the importance of sinusitis in childhood. It has long been known that it is common in adult life, and it stands to reason that children are more liable even than adults. They are more susceptible to colds, and their sinuses drain less readily during a cold, since the small nose is so easily blocked by mucosal swelling. We know how frequently otitis media occurs in the young, and the middle ear is, after all, only a specialized sinus off the nasopharynx. And the sinuses are all present in childhood: the antrum exists at birth, and by the third year is a fair-sized cavity; the ethmoid labyrinth contains well-defined cells at birth; and the sphenoid is a definite cavity in the third year. The frontals vary greatly in development, but by the age of 5 or 6 there is usually a good-sized cavity. Therefore there is every reason to expect sinusitis in early life.

The Causation of Sinusitis

By far the commonest cause of sinusitis is a cold, or colds. Influenza, particularly in some epidemics, is often responsible for the onset, and sinusitis may follow any of the infectious diseases which are accompanied by upper respiratory inflammation, particularly whooping-cough. Bathing in infected water is another mode of infection; but so far as children are concerned antrum infection from bad teeth does not arise. Lastly, allergic rhinitis may give origin to secondary sinusitis.

It is true to say that with every nasal cold there is sinusitis. How could it be otherwise when the mucous membrane lining the sinuses is continuous with that of the nose? A radiograph taken during a cold will almost always show some thickening of the mucous membrane in the antra. But usually as the cold gets better the sinuses return to normal. When, however, there is retention of exudate in a sinus during an acute infection, or if inflammation persists in such a cavity after the general nasal infection has settled, sinusitis merits separate consideration. Retention of exudate under tension, due to closure of the ostium by inflammatory swelling, gives rise to headache, localized pain, and tenderness. Persistence of inflammation in a sinus, with an open ostium, induces nasal congestion and discharge. The latter is often of the nature of an overflow, the matter in the sinus accumulating until it has reached the level of the ostium. Normally the cilia wipe the exudate towards the ostium, against gravity if necessary. When they are inflamed they are incapable of doing this.

It is essential to bear in mind that pus in a sinus is, strictly speaking, outside the main body cavity. It is in

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no way comparable to inflammation in a long bone, for instance. Provided the ostium is open drainage is present and there is rarely any increase of temperature or localized pain. These manifestations arise only when the ostium is blocked, and then the condition more closely resembles an abscess elsewhere.

The anatomical peculiarities of an individual nose may make it more liable to sinusitis than is normal. For instance, a deviated septum which presses upon a middle turbinate may completely block the ostia of several sinuses when there is nasal congestion. A small and crowded nose is less likely to maintain adequate drainage for the sinuses during a cold than a good roomy nose, and, of course, a sinus may have an abnormally small ostium. And, last but by no means least, some people are highly susceptible to upper respiratory infections, and appear to have little or no immunity to colds. They are obviously candidates for sinusitis.

Bacteriology

It is interesting to compare the bacteriology of sinusitis with the bacteriology of the nose. When I made my observations upon a series of children nasal swabs were taken from them at the time the antra were aspirated. Whereas the commonest organism found in the nose was the staphylococcus, the pneumococcus was much the most frequent organism in the infected antra. Next commonest in the sinus was the Pfeiffer bacillus, but it was rare in the nose. The *Micrococcus catarrhalis* and the *Bacillus hoffmanni* were common in the nose but rare in the sinuses. The streptococcus was a frequent cause of sinusitis but was not so often found in the nose. The usual causes of sinusitis were therefore the pneumococcus, the Pfeiffer bacillus, and the streptococcus. The common organisms in the nose were the staphylococcus, the *Micrococcus catarrhalis*, and the *Bacillus hoffmanni*. The pneumococcus produces a very thick yellow pus, and one wonders whether this fact gives it pre-eminence as a cause of sinusitis, the pus being too thick to escape from the ostium readily.

There is one special peculiarity about the pathology of sinusitis in children: the bone surrounding the sinuses is more porous than in later life, and osteitis is more likely to arise. I will now proceed to the clinical manifestations.

Acute Sinusitis

Acute sinusitis meriting separate consideration from a generalized inflammation of the nose, sinuses, and throat is comparatively infrequent in childhood, and it only calls attention to itself during the course of such an infection when the discharge cannot escape from the sinus. This happens, of course, when the ostium becomes blocked owing to the swelling of the mucosa encroaching on the narrow opening. It therefore occurs typically at the height of an acute cold or influenza.

SYMPTOMS

These vary with the sinus involved, and usually consist of severe headache, localized pain, tenderness, and an increase in fever. If the antrum is at fault there may be swelling of the cheek and oedema of the orbit. Sometimes osteitis of the maxilla results. An acute block in the ethmoids with osteitis is not very uncommon in the first year or two of life. When severe there is a tender swelling over the upper part of the side of the nose, and the orbit is closed by great oedema. Sometimes the eyeball is immobilized. On several occasions the diagnosis of cavernous sinus thrombosis was made. It is important to recognize the nature of the illness, because external opening of the ethmoids results in recovery, while neglect of it may end in cavernous sinus thrombosis and death.

TREATMENT

In the first place treatment is conservative. In the great majority of instances the ostium can be made to open and let out the discharge without surgical intervention. The patient will of course be in bed; and it is important to maintain an even temperature in the room. Sudden changes of temperature increase nasal congestion. The main object of treatment is to shrink the inside of the nose till the discharge comes away. There are many preparations of use for this purpose—they usually contain ephedrine and volatile oils. A benzedrine inhaler is effective, and children like it. Inhalations of menthol in hot water are helpful if the child is old enough to use them. In addition the middle meatus of the nose should be shrunk by the application of a cotton-dressed probe dipped in cocaine 10 per cent. and adrenaline 1 in 1,000. Only if these measures fail after trial for a few days should surgery be resorted to, and then it should be as simple as possible: for instance, aspiration of the antrum, but not lavage, which may spread the infection.

It is obvious that acute sinusitis may pass on to a chronic condition in which there is inflammation of the mucous membrane, although drainage has been established.

Chronic Sinusitis

Chronic sinusitis is so often found in the catarrhal child who is liable to colds that it must claim our chief attention. The pathological condition present is catarrhal, or, more rarely, suppurative, inflammation of one or more of the sinuses with continued discharge into the nose. Most often the trouble lies in the antrum. I had come to that conclusion clinically, and was pleased to see that Ebbs in his series of necropsies had found that the antrum was involved more often than the ethmoids and sphenoids added together

SIGNS AND SYMPTOMS

A series of 100 children with sinusitis at Great Ormond Street was analysed for signs and symptoms of chronic sinusitis, and the following figures are based on this examination. Subsequent observations on many hundreds of children have confirmed them.

Nasal Discharge.—The most frequent symptom was nasal discharge, and of the 100 children eighty-four suffered from it. There is one point to beware of in children. A child hates to have his nose blown, and will try his best to avoid being attacked with a handkerchief. Therefore he tends to sniff nasal discharge backwards into the throat. It is not enough to ask a mother if the nose runs; you must ask if the child sniffs. Very often the mother says there is no discharge, but that the nose is stuffy and full of catarrh. The secretion may be mucoid and clear or yellow and sticky, and is sometimes purulent. Since sinusitis is so often bilateral—the antrum was involved on both sides in sixty-one children and on one side only in thirty-nine cases in this series of 100—the discharge is usually from both sides of the nose. The child is hardly ever free from catarrh, except perhaps for a few summer months. Each cold is accompanied by a streaming nose, which takes several weeks to improve. In short, children with sinus disease are catarrhal, and one could almost go further and say that children with catarrh have sinusitis. In these eighty-four children the average duration of nasal catarrh was two years.

Colds.—Of the 100 children eighty-three suffered from frequent colds. Sometimes the mothers said they were never free from cold—another way of stating that they had chronic catarrh. Colds are the cause of sinusitis, and so we would expect these children with sinusitis to have colds. But sinusitis is also a cause of colds. Sometimes after washing out an antrum a child develops a cold or tonsillitis: active organisms have been released. It is therefore obvious that a discharging sinus may cause a cold, and the vicious circle is complete.

Cough.—Eighty-two of the 100 children suffered from cough. It is a severe hacking cough, often resembling whooping-cough, worse at night and on waking, and is the result of post-nasal discharge through sniffing. If the discharge lies in the nasopharynx the cough is merely a reflex irritation. Unfortunately it may be a much more serious matter. If some lipiodol is placed in an antrum and the child then goes to sleep, some will be found in the lungs next morning. So it is with the purulent discharge from the sinuses. During deep sleep it drops through the open glottis into the lungs, and often serious lung trouble develops. Nearly all bronchiectatics have sinus disease. It has never been proved that the sinusitis is the cause of the bronchiectasis, but it seems a reasonable possibility. I do not believe in the other theory, that coughed-up sputum infects the sinuses. Most likely there is some weakness in the respiratory system, or lack of resistance to disease, which makes both the lungs and the sinuses liable to inflammation.

Snoring and mouth-breathing were present in 62 per cent., and here one must say a word about the "adenoid face." It is a pity that such a term was ever coined, for it has misled all of us. The adenoid face is the face of a child with a blocked nose and nothing more. And adenoids are not the most common cause of a blocked nose even in children. The nasopharynx is a big space, and it needs a good mass of adenoids to block it up. Occasionally such a mass is found, but not more often than, say, once in every five or six operations for the removal of tonsils and adenoids. On the other hand the nose is a narrow space, and is very easily blocked by swelling of the turbinates and accumulation of discharge. In sinusitis the turbinates become swollen, particularly the inferior turbinates over which the discharges flow. In my opinion an "adenoid face" is more often the result of nasosinusitis than it is of adenoids. Of course the two may go together.

Sore throats may occur in sinusitis from mouth-breathing, and tonsillitis may result from infected post-nasal discharge.

Enlarged cervical glands are seldom the result of sinusitis by itself. Lymphatic absorption from an intact sinus is not great.

Headaches are common, and occurred in 44 per cent. They are usually frontal, and are apt to be severe during a cold.

Otitis media occurred in forty-four of the 100 children with sinusitis. Trickling as it does over the orifices of the Eustachian tubes, it is little wonder that post-nasal discharge often leads to otitis media. It is almost an axiom these days that otitis media calls for the removal of adenoids. It also calls for an investigation of the sinuses, and one has often seen persistent otorrhoea clear up after treatment of an infected sinus.

Systemic Effects.—Chronic sinusitis causes general debility, characterized by mental lassitude and a change for the worse in temperament. A child with sinusitis is often morose and ill tempered; he is easily tired, and has dark rings under his eyes. Sinusitis does not commonly constitute the focus of infection responsible for such diseases as rheumatism or arthritis. Organisms are not readily absorbed from the sinuses, and even the lymphatic drainage is slight.

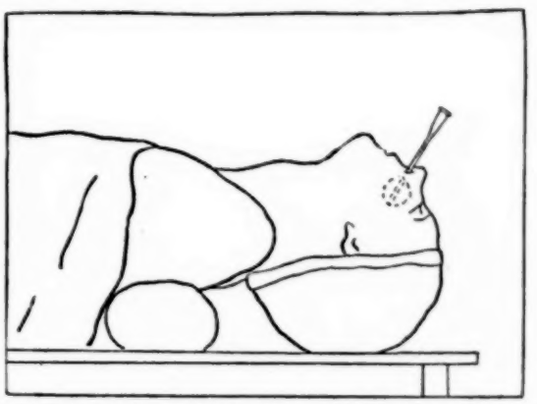
DIAGNOSIS

This rests upon the symptoms in the first place, but must be supplemented by certain special observations, which are: (1) examination of the nose, (2) transillumination, (3) radiography, and (4) puncture-aspiration.

Examination of the Nose and Throat.—Continued discharge from a sinus causes nasal congestion on the corresponding side, and of course nasal congestion leads to further retention in the sinus; so one expects to see congestion and hypertrophy of the inferior turbinate on the side of the nose corresponding to the sinusitis. The middle turbinate is also often swollen, but is less easy to see. In the middle meatus, or between the inferior turbinate and the septum, there may be an accumulation of mucus or muco-pus. A post-nasal examination would reveal post-nasal discharge. It is difficult to carry out in a child, but often enough a blob of muco-pus will be seen hanging down behind the uvula. The pharynx is usually red and granular.

Transillumination is sometimes useful. If the sinus involved is the antrum, and if the condition is unilateral, a definite finding is obtained with transillumination. Unfortunately circumstances are not often so favourable, for when both antra are infected it is still possible to get a light through them in a child if it is powerful enough. And again if they are poorly developed, or have unerupted teeth in front of them, they appear dull.

X-ray examination is essential. For general purposes one film taken in the naso-mental position is sufficient. It shows the antra, the ethmoids, and the frontals, and the cause of any opacity—whether thick mucous membrane only, or fluid content. Usually the infected antrum shows a uniform opacity made up of thick membrane and retained secretion. In a child a fluid level is rather rare, and indicates a not very thick lining, for such a lining would obscure the level. A good radiograph will always show disease if it is present, and it is unwise to presume a pathological change in a sinus that is clear in such a film.



Puncture-aspiration of the antrum. This position is suitable for either local or general anaesthesia. The cannula reaches the most dependent part of the cavity, and the head is easily held still.

Puncture-aspiration of the antrum is the final proof of the presence of infected contents in that cavity. It is not such a delicate test of sinus pathology as an *x*-ray examination, for many a sinus shows changes in the

mucosa in a radiograph but is clear on aspiration or wash. The converse does not hold good. There are two points worth mentioning in regard to puncture-aspiration. It is advisable to culture the fluid aspirated, and it would be useless to aspirate it through the ordinary cannula, since that is contaminated by the withdrawal of the trocar. Therefore a finer cannula is attached to a glass syringe containing sterile saline, and this is passed through the original cannula left *in situ* and the contents are aspirated into the syringe. The position of the head is also important, for the point of the cannula must reach the lowest part of the antrum cavity. This can only be attained by adopting the position I advocate: the child lying on his back with the shoulders on a sand pillow, and the head extended fully (see diagram).

TREATMENT

The treatment of chronic sinusitis is in the first place preventive. Colds must be avoided by improving hygiene and general health and resistance. When they occur the nasal mucosa must be shrunk so that the ostia of the sinuses remain open. If subacute or chronic catarrhal sinusitis persists after a cold general medical treatment is indicated. Only if there is retention of inflammatory products in a sinus is lavage necessary. Operation is reserved for chronic suppurative sinusitis.

As an example, take the child who has all the past winter been subject to repeated colds, and since the last cold a month or so ago has had continuous nasal catarrh. Examination reveals a debilitated sniffing child with a little cough. The inferior turbinates of the nose are swollen. There is a mucoid discharge seen running down the back of the throat. *X*-ray examination shows swollen mucosa of the antra, and perhaps the opacity is more marked on one side than on the other, suggesting some amount of retention. What is the correct line of treatment? It should be started by keeping the child in a warm, well-ventilated room for a week, the nose meanwhile being shrunk by repeated applications of shrinking drops and by inhalations of menthol. At the same time a vitamin-containing tonic should be given. After that the child should get out whenever the weather is reasonable, and when he has been doing that for a week, the nasal shrinking being continued with, he should go to the seaside. After a month or two on the south coast a radiograph would probably show the sinuses to be clear. Admittedly such expensive and prolonged treatment is out of the question for many children. If so, one may be forced into washing out the antra as the quickest way to get rid of the symptoms. It often works like a charm, but it is no real substitute for the improved general condition and resistance which would have resulted from a holiday at the seaside.

Now consider a more severe example, that of a child who has had constant nasal discharge all the winter. The general condition has suffered a good deal, and a hard barking cough which interrupts sleep at night has developed. Perhaps there has been headache. Radiographs show complete opacity of one or both of the antra. It is unlikely that the line of treatment suggested for the previous case will be rewarded with success. It is necessary to proceed straight away by washing out the sinus in question, and there is no doubt that recovery, even if it does not depend entirely on lavage, will come about much quicker because of it. It is quite possible to wash out the antra of children under local anaesthesia. With a very nervous or difficult child it may be necessary to give a general anaesthetic, but I rarely have to resort to it, especially in hospital practice. According to the findings on lavage the procedure may need to be repeated several times, usually at weekly intervals. The average number of washes necessary in the 100 children I have quoted was three. The treatment as outlined for the milder case should be given at the same time.

Finally, consider the exaggerated example of a child who has had a purulent nasal discharge for several years, and is found on *x*-ray examination to have an opaque antrum with chronic changes in the mucosa. In my opinion lavage is again indicated, and should be repeated up to a dozen times if there is improvement rather than that an intranasal operation should be resorted to. Of course, if there is as much purulent discharge on the sixth wash as there was on the first, one would probably feel that more radical treatment was necessary.

What is more radical treatment? It is antrostomy—that is, punching as large a hole as possible in the bone of the inferior meatus, between the nose and the antrum. There is then dependent drainage and a large opening through which it is easy to insert a curved tube for washing. I do not consider it such a desirable operation as it sounds theoretically, at any rate in childhood. The floor of the antrum being higher than the floor of the nose during youth, the opening cannot be made very large unless the inferior turbinate is sacrificed, which I am unwilling to do. Also, the hole in the young bone is apt to close in a month or two. Finally, lavage through the opening is little more pleasant than puncture. In spite of its drawbacks, however, it is an operation which has often been followed by good results.

Lastly, there are those cases, even in childhood, in which such advanced disease of the mucosa of the antrum is present that only its removal will alleviate the symptoms. Then a Caldwell-Luc operation has to be done.

We have been discussing the antrum. It is easier to treat than the other sinuses and enables one to present a scheme of treatment more readily. In addition it is far more frequently diseased than the other sinuses in childhood. Disease in the *sphenoid* is more difficult to diagnose and treat. One depends on radiographs even more than in the case of the antrum. Lavage can be carried out through a straight trocar and cannula.

The complicated structure of the *ethmoids* makes them unsuitable for puncture and lavage. In advanced disease it may be necessary to remove the middle turbinate and open the cells, but in less severe inflammation of the ethmoids—and the same applies to the sphenoids—Proetz (1931) has worked out a most valuable form of treatment which he calls displacement. The principle is the introduction of shrinking or therapeutic fluids into the sinuses by means of repeated negative pressure applied to the nose, which is filled with the fluid selected. This form of treatment applies particularly to the ethmoids and the sphenoids, and is of less value in the antrum.

Short-wave diathermy has been used recently, and is of benefit in those conditions of chronic catarrhal sinusitis which are not accompanied by retention of exudate.

Prognosis

What is the outlook in sinusitis in childhood? It is obviously much more favourable than in later life, for two reasons: (1) the young tissues recover more quickly and completely; (2) sinusitis in the adult may have been in existence for years before it is diagnosed.

Sinusitis has a bad reputation, and one is told that it is never cured for life. That is obviously because it

does not fall into the "ectomy" class. Appendicectomy and tonsillectomy leave no room for recurrent inflammation in the organs involved. No doubt removal of the antrum would be followed by a complete cure of antritis. But the cure would be much worse than the disease. It is possible to cure inflammation in a sinus completely by adequate treatment, but of course the sinus remains, and so does the inherent liability to infection of it which caused the original trouble.

Of the 100 children we have been discussing fifty-two were completely cured—that is, they were free of symptoms, and final radiographs showed normal sinuses; thirty-two were improved; and sixteen remained unchanged.

Relation of Tonsils and Adenoids to Sinusitis

Even in a short paper one cannot omit referring to the tonsils and adenoids and their relation to sinusitis. The first question that comes to mind is, "Does infection of the tonsils and adenoids cause sinusitis?" If so it must be either because the adenoids are so large as to block the nasal airway and interfere with ventilation of the sinuses, or because it is a result of surface spread of infection against the normal mucous stream kept up by the cilia. The removal of tonsils and adenoids should cure sinusitis, and it should be uncommon among children who have had their tonsils and adenoids removed. I have already mentioned that of twenty-four cases of sinusitis in children only nine cleared up after removal of the tonsils and adenoids, and they might have done so without the operation. Of the 100 children with sinusitis forty-one had already had their tonsils and adenoids removed completely. The broad conclusion is justifiable that disease of the tonsils and adenoids is not a common cause of sinusitis and that their removal is neither a preventive nor a cure of the condition.

The second question is, "Does inflammation in the sinuses give rise to infection of the tonsils and adenoids?" As the post-nasal stream of mucus is over the adenoids and posterior halves of the tonsils the mechanical possibility of such an infection is evident. It is difficult to draw conclusions from the fact that forty-one of our 100 children had previously had their tonsils and adenoids removed. They may have had the operation done for symptoms which should more properly have drawn attention to the sinuses. Even worse, they may have developed sinusitis as a result of imperfect technique during the operation of removal of their tonsils and adenoids. One has seen that happen. Infected blood runs into the sinuses and sets up inflammation there.

I believe that sinusitis is a common cause of inflammation of the adenoids, and to a lesser degree of the tonsils. The first step in the treatment of sinusitis is the treatment of the sinus itself, and not the removal of the tonsils and adenoids. If the latter are infected and fail to respond to such treatment they should be removed. If there is a large pad of adenoids interfering with respiration, treatment of coexisting sinusitis is not likely to lead to cure until it is removed.

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A CLINICAL EXPERIMENT IN OESTRIN THERAPY

BY

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Oestrin is now well established as a therapeutic agent, but many problems remain to be solved before the most effective mode of administration can be determined. The principle of endocrine therapy is to give the hormone by the most convenient route in such a form and dosage that it will be delivered at the site of effect at a suitable rate, in suitable concentrations, and over as prolonged a period as possible or desirable. The following case illustrates some of the factors to be considered in the use of oestrin.

On February 27, 1936, Mr. Frank Cook did a bilateral ovariectomy, for cysts of both ovaries, on a girl, aged 20, who had suffered for some time from irregular menstrual bleeding. Three days later uterine haemorrhage started and continued for three days. Nine days after the operation hot flushes began to appear. Oestrin was first given forty-four days after operation, by which time the patient was complaining of about twelve hot flushes a day, and during the subsequent two years the case afforded an opportunity for studying the effects of oestrin given by mouth, by injection, and by implantation. In Chart I the number of daily hot flushes is indicated, and is correlated with the dose of oestrin administered.

The Effective Dose of Oestrin for a Recent Castrate

A consideration of the chart shows that the symptoms as measured by the daily frequency of hot flushes began to come under control when oestrone (menformon, Organon) was given in daily doses of 6,000 I.U. (0.6 mg.) by mouth, and after a prolonged period of administration of higher doses remained completely controlled by 5,000 I.U. daily. The case is particularly suitable for this type of investigation, since the daily hot-flushes curve rose rapidly when treatment was discontinued. Later in the patient's history (January, 1937, et seq.) doses increasing from 1,000 I.U. of oestrone by injection had an effect on the symptoms; and later still (October, 1937) 5,000 M.U. of oestriol by mouth* (tridestrin, Paines and Byrne) was found to be a suitable maintenance dose. Finally the implantation of a 14 mg. tablet of crystalline oestrone produced a demonstrable effect lasting over a period of weeks.

Thus it would appear that relatively small doses of oestrin by mouth are effective in controlling the symptoms of acute ovarian deficiency in a castrate. This observation is supported by results obtained in other cases. For instance, the administration of 1,000 I.U. daily for a fortnight, followed by 2,000 I.U. for another fortnight, completely relieved the symptoms of a woman of 54 who was suffering from a moderately severe menopause with six hot flushes a day, and converted a well-marked menopausal vaginal smear into one typical of oestrus.

It is important to determine the minimal effective maintenance dose of oestrin in these cases, for the administration of high doses has certain disadvantages:

1. It may induce uterine haemorrhage, and the patient suffering from the effects of a natural menopause should be

* Oestriol (tri-hydroxy-oestrin) is less potent when given by injection than oestrone (keto-hydroxy-oestrin), but it is more effectively absorbed than oestrone when given by mouth. It therefore appears to be a suitable method of peroral administration of oestrin.

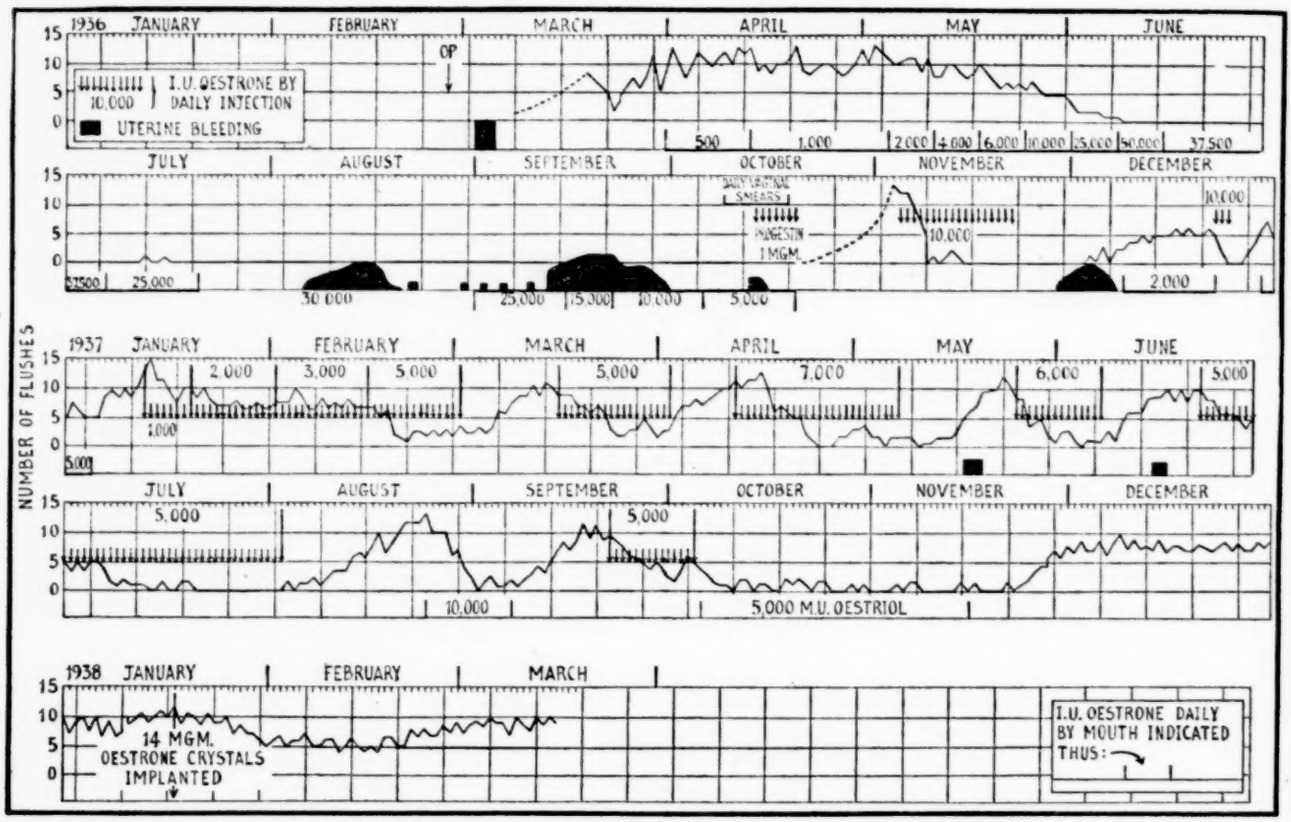

CHART I.—Showing the number of hot flushes daily and their correlation with the dose of oestrin administered.

warned of this possibility if moderately high-dosage oestrin therapy is contemplated.

2. It may give rise to certain uncomfortable symptoms such as a feeling of fullness, headaches, and nausea, which are probably moliminal in nature and are due to dosage slightly below that which would produce oestrin-withdrawal bleeding.

3. It may inhibit the gonadotropic activity of the anterior pituitary gland. The sudden or gradual diminution of ovarian function in the castrate or at the menopause produces excessive gonadotropic activity, and it is the disturbance of balance between these two endocrine secretions that is responsible for the symptoms of the menopause. The action of oestrin in minimal effective doses is to accustom the organism to the new level of hormone activity, whereas the administration of unnecessarily high doses inhibits pituitary function and merely postpones the appearance of menopausal symptoms until oestrin therapy is discontinued.

Oestrin Threshold Bleeding

From the beginning of August to the middle of October, 1936, intermittent uterine haemorrhage was taking place. Observations by Zuckerman (1937) on the cause of uterine haemorrhage in primates have revealed the fact that there are three significant levels of oestrin utilization by the uterus. (The term "oestrin utilization" is preferred to "oestrin concentration," since two factors are concerned—the concentration of oestrin in the blood reaching the endometrium, and the degree of sensitivity of the endometrium to oestrin.) These levels are (1) subthreshold, (2) threshold, and (3) superthreshold (see Chart II). The superthreshold level is indicated by uterine haemorrhage occurring a week or so after the dose of oestrin is lowered or completely withdrawn. This is known as "oestrin-withdrawal bleeding." The threshold level is shown by intermittent bleeding occurring during the period of administration of oestrin—"oestrin threshold bleeding."

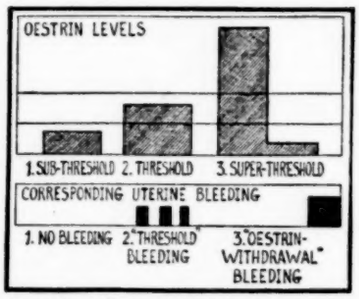

CHART II.—The effect of different levels of oestrin.

Zuckerman points out that this type of haemorrhage tends to occur in forty-two-day cycles. The subthreshold level fails to produce bleeding either during or after the period of administration. The haemorrhage which occurred in August could not have been oestrin-withdrawal bleeding, since the daily peroral dose of oestrone had been raised from 25,000 to 30,000 I.U. (2.5 to 3 mg.) a fortnight previously. Nor can the haemorrhage in September be regarded as a withdrawal bleeding, for the dose had been lowered only from 30,000 to 25,000 I.U. It seems probable, therefore, that this represents threshold bleeding, and it may be noted that the two main bouts of haemorrhage occurred at an interval of thirty-seven days, which approximates fairly closely to Zuckerman's forty-two-day interval. It will be seen that the dose of oestrin required to produce threshold bleeding is about five times higher than that required to relieve subjective symptoms such as hot flushes.

The calibration of the threshold-bleeding level is important, since it provides information as to the physiological dose of oestrin requisite for proliferative development of the endometrium, and consequently suggests the dosage

necessary to stimulate the endometrium in cases of amenorrhoea. An attempt was therefore made to determine the level for threshold bleeding when oestrone was given by injection. Administration of 10,000 I.U. (1 mg.) of oestrone by injection daily for a fortnight induced withdrawal bleeding after a seven-day interval. Later (April, 1937) a three-weeks course of 7,000 I.U. by injection and a fortnight's course of 6,000 I.U. gave rise to withdrawal bleedings nine and eight days after administration was discontinued, whereas a seven-weeks course of 5,000 units by injection did not produce uterine haemorrhage. Thus it would appear that the intramuscular dose of oestrin necessary to produce threshold bleeding in this case is between 6,000 and 5,000 I.U. (0.6 and 0.5 mg.), whereas the oral dose was found to be between 25,000 and 30,000 units, suggesting that oestrone is about five times as effective by injection as by mouth. This agrees with the observations on the relief of subjective symptoms (frequency-of-hot-flushes curve)—namely, that 5,000 units by mouth and 1,000 units by injection diminished the number of hot flushes.

It is not suggested that 5,000 I.U. represents the bleeding threshold of all castrated women. It is obvious that this level depends on factors such as the degree of atrophy of the endometrium at the time the experiment is begun and the individual sensitivity of the subject's reproductive tract to oestrin. For instance, in the case of another castrate, a three-weeks course of daily injections of 1,000 I.U. for fourteen days, followed by 2,000 I.U. for seven days, provoked an oestrin-withdrawal bleeding five days later, whereas a fortnight's course of 1,000 I.U. daily provoked no withdrawal haemorrhage. Her bleeding threshold would therefore appear to be between 1,000 and 2,000 I.U. daily.

Effect of Implantation of a Tablet of Crystalline Oestrone

Parkes (1938) has recently drawn attention to the fact that the duration of effect of an endocrine preparation is inversely proportional to its solubility in the body fluids. For this reason the administration of oestrone or oestradiol by injection in the form of the monobenzoate prolongs the effect by diminishing the rate of absorption from the site of injection. The pure crystalline hormone, administered in solid form and not in an oily solution, appears to be absorbed considerably more slowly, and Deanesly and Parkes (1937) have shown that the implantation and reimplantation of a single 6 mg. tablet of compressed crystalline testosterone into a series of castrated rats for ten-day periods demonstrated its effectiveness over a total of 130 days.

This method has been employed in the case under discussion. The hot-flushes-frequency curve was allowed to reach a plateau at a fairly high level (about ten to twelve a day), and then on January 17, 1938, a 14 mg. (140,000 I.U.) tablet of compressed pure crystalline oestrone was placed beneath the skin of the abdominal wall. The hot-flushes-frequency curve began to descend in about a week and reached a trough at four to six daily about four weeks after implantation, after which it gradually rose again, reaching a level of eight to ten daily flushes about seven weeks after implantation. Assuming that absorption from the surface of the crystal occurred at a constant rate (though there is no evidence to support this assumption), and taking the period of effectiveness as four to five weeks (twenty-eight to thirty-five days), it may be calculated that the daily absorption corresponded to 0.4 to 0.5 mg. (4,000 to 5,000 I.U.). An examination of Chart I shows that the effect of the implantation on the hot-flushes-frequency curve is very similar to that of daily injections of 5,000 I.U. (see February, 1937).

The inference is that the dosage used in this case was too low and that the effect might have been more marked and prolonged if a crystal of greater weight had been implanted. Taking these facts into consideration, it would appear that this new method of hormone administration represents a significant advance in the field of endocrine therapy.

Summary

Experiments performed on a human female castrate are described:

1. Administration of oestrin in quite small doses by mouth was effective in controlling symptoms.

2. The level of oestrone threshold bleeding was found to be between 6,000 and 5,000 I.U. by injection and 25,000 and 30,000 I.U. by mouth, suggesting a peroral/intramuscular ratio of 5:1.

3. A 14 mg. tablet of crystalline oestrone was implanted subcutaneously, and was effective in controlling symptoms for four or five weeks.

I should like to acknowledge my indebtedness to my colleagues in the endocrine clinic, Dr. A. C. Hampson and Mr. H. A. Hamilton, for their interest and co-operation in this experiment; and to thank Dr. A. S. Parkes for supplying me with the tablet of crystalline oestrone, Dr. A. N. Macbeth of the Organon Laboratories for generous supplies of menformon, and Messrs. Paines and Byrne for supplies of oestriol (tridestrin).

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G. Crile (*Clev. clin. Quart.*, January, 1938, p. 33) discusses the diagnosis and treatment of essential hypertension. There is an increase in the diastolic blood pressure, changes in the optic disks and in the kidneys, and a history of disability and distress. Sclerosis may become established if hypertension begins in early life. It is urged that when hypertension has reached the malignant phase the risk of operation in the hope of curing or relieving the symptoms is justified. In a series of sixty-nine consecutive cases symptomatic improvement was noted in 95 per cent. on discharge from hospital. Surgical treatment of essential hypertension was carried out on the adrenal sympathetic system in 213 patients, a total of 358 operations being performed. Of these, 206 were coeliac ganglionectomies in 129 patients. It was found that this operation with denervation of the adrenal glands gave the most encouraging results. It does not interfere with metabolism, or with the function of the digestive or genito-urinary tract. It was found that many patients were completely relieved of symptoms after operation, while a large majority experienced considerable relief. Among the last 112 individual coeliac ganglionectomies there have been only two deaths. It was considered that impaired kidney function was a contra-indication to the operation, but the early results in two cases in which glomerulonephritis was associated with essential hypertension have led the author to believe that this may not be correct. A final judgment regarding the end-results of coeliac ganglionectomy cannot yet be made, but it is suggested that the symptomatic relief, the improvement in the blood pressure, and the fact that many patients are able to return to their usual occupation make this form of operative treatment well worth while.

LEUCOPENIA IN PNEUMOCOCCAL PERITONITIS TREATED BY SODIUM PENTOSE NUCLEOTIDE

BY

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The exceptionally high mortality rate of primary pneumococcal peritonitis (Rischbieth, 1910–11, 90 per cent.; McCartney and Fraser, 1921–2, 65 per cent.) justifies the evaluation of any ancillary methods of treatment used in surviving cases. There appears to be a general consensus of opinion to-day in favour of delaying operation until there are signs of localization of the abdominal exudate—that is, about the end of the second week of the disease in surviving cases. Horine (1935), quoting Continental surgeons, gives a 75 to 95 per cent. mortality rate in cases treated by early operation, compared with up to 25 per cent. in cases treated by simple drainage in the stage of localization. From time to time, however, a case occurs where the diagnosis is uncertain, and the surgeon, feeling that he may be overlooking peritonitis of appendicular origin and lacking the courage to temporize, decides to explore the right iliac fossa. In the diagnosis of such cases of peritonitis of doubtful origin much importance has been attached to the leucocyte count as indicating the type of infection present (Budde, 1933; Gibson, 1930). It is considered that an unusually high leucocyte count with a high percentage of polymorphonuclear cells is distinctive of pneumococcal peritonitis.

The case about to be described, in which the initial leucocytosis was slight, presented difficulties in diagnosis so far as the origin of the peritonitis was concerned, and the history of the administration of an aperient soon after the onset of the attack was the deciding factor in favour of immediate operation.

At operation the true state of affairs—namely, an "idiopathic" general peritonitis—was disclosed; this was found to be pneumococcal. The subsequent course of the disease, which responded to treatment in a remarkable manner despite the later complication of double basal pneumonia, leads me to publish this case, in the hope that the measures adopted may be useful to surgeons faced with a similar condition. For a few days, however, the case appeared to be hopeless, both clinically and especially so far as prognosis could be based on the blood picture.

Case History

A British girl aged 10 years, in good health, was seized with acute generalized abdominal pain on the night of May 22, 1937. This became progressively worse during the following morning, when she vomited several times. Her mother, attributing her symptoms to overindulgence at a recent party, administered a dose of salts. The child's condition became worse during the afternoon, when her temperature rose to 102°. Several loose motions were passed, and the abdominal pain appeared to be very severe.

I first saw the child at 6.30 p.m. on May 23, and it was obvious that there was general peritonitis. Her pulse was 120, her temperature 102.8°, and respirations 24 per minute. Abdominal distension was present, and she was in considerable distress from pain, most severe over the lower abdomen, which was held almost immobile during respiration. A vivid malar flush was evident. On palpation marked rigidity of the lower abdomen was felt, and although tenderness was general it appeared to be most definite over the right iliac fossa. The patient stated that her pain was worse in that region when the right thigh was fully extended. On rectal examination general tenderness was elicited, but no localized swelling was palpable. There was no history of any vaginal discharge. Examination showed no abnormal signs in the heart or lungs, and urinalysis was normal. A blood count resulted as follows: Red blood cells, 4,980,000 per c.mm.; white blood cells, 10,600 per c.mm.; haemoglobin, 80 per cent.; colour index, 0.81. The differential count read: Polymorphonuclears, 80 per cent.; large lymphocytes, 2 per cent.; small lymphocytes, 17 per cent.; hyalines, 1 per cent.; eosinophils, nil. Owing to the extremely acute nature of the child's symptoms, and the history of the aperient, a diagnosis of acute peritonitis of appendicular origin was made and immediate operation advised. This was performed under ether anaesthesia at 7.45 p.m. on May 23, approximately twenty-two hours after the onset of the patient's symptoms.

The abdomen was opened by Battle's incision, and a small quantity of greenish-yellow seropurulent fluid escaped on incising the peritoneum. Smears and cultures were taken for examination. The coils of small intestine were intensely congested and dark red in colour, with numerous flakes of fibrinous lymph adhering to the serous coat. The appendix was red and congested, as were the pelvic organs, and some purulent fluid was present in Douglas's pouch. Apart from sharing in the general inflammation the tubes did not appear to be particularly inflamed. The case suggested an early streptococcal peritonitis; appendicectomy was performed, the fluid exudate completely removed by suction, and the abdomen closed without drainage. The patient was returned to bed and nursed in the Fowler position, a continuous rectal drip saline with 5 per cent. glucose being administered. Later the laboratory reported that the smears contained numerous pus cells with Gram-positive diplococci, showing evidence of a capsule. On the following day the cultures yielded a pure growth of pneumococci: the patient had therefore been operated on in the early phase of pneumococcal peritonitis. Unfortunately type sera were not available for the treatment of the case. Blood transfusions did not appear to be indicated.

On the day following operation (May 24) the patient's condition was fair: the pulse was 128, temperature 102°, and respirations 26. Abdominal distension was considerable, although the passage of the rectal tube resulted in the evacuation of fluid faeces and gas. Morphine was administered hypodermically in 1/12-grain doses whenever the patient became restless, and large hot fomentations were applied, covering the whole abdomen and flanks. The rectal drip was continued at intervals throughout, and only sips of water were given by the mouth.

Next day the patient's general condition was much worse, with a great deal of abdominal pain and distension, and several fluid motions were passed. The pulse was now 135, the temperature 103.5°, and the respirations 32. A blood count at this stage showed a sharp drop in leucocytes to the extent of a marked leucopenia, and the presence of numerous immature forms: Red blood cells, 4,850,000 per c.mm.; white blood cells, 2,600 per c.mm.; haemoglobin, 80 per cent.; colour index, 0.83. The differential count gave: Polymorphonuclears, 81 per cent.; large lymphocytes, 5 per cent.; small lymphocytes, 12 per cent.; hyalines, 2 per cent.; eosinophils, nil. The Schilling-Torgau ratio of immature to mature forms of polymorphonuclears was 6:5. From the general and haematological standpoints the prognosis appeared hopeless.

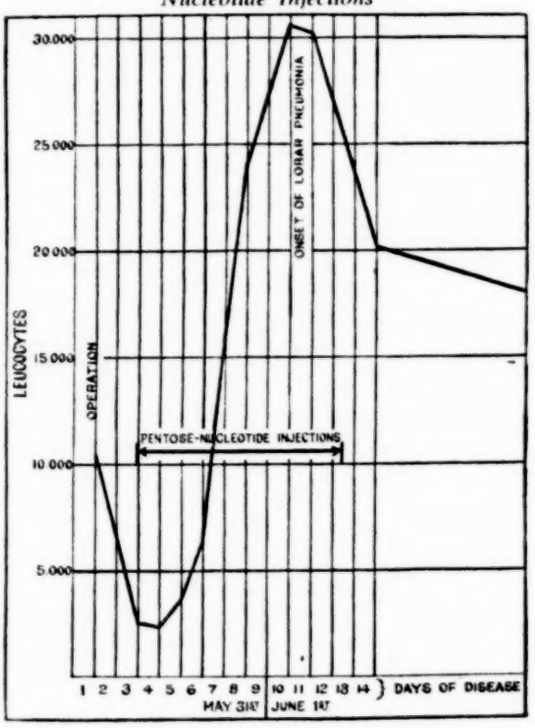
Dr. J. B. Robinson, who confirmed the blood findings with Dr. T. J. Hua, saw the patient in consultation that day, and suggested immediate treatment with a pentonucleotide preparation so as to try to induce leucocytosis. The preparation "sodium pentose nucleotide" (Evans Sons Lescher and Webb) was available, and treatment was at once started, giving 2 c.cm. intramuscularly twice daily. This dose was gradually increased during the following days until 5 c.cm.

was being given twice daily by May 30. The white cell counts during this period were as follows: May 27, 3,400; May 28, 6,600; May 29, 15,700; May 30, 23,700.

On June 1, as the patient's abdominal condition was assuming a more chronic character, a further rise in temperature, with dyspnoea and severe cyanosis, heralded the onset of pneumonic consolidation in the lower lobes of both lungs (pulse 140, temperature 104°, respirations 42). At this time the leucocytes numbered 27,000, but the Schilling-Torgau count gave a 3:6 ratio. During the next week the clinical picture was one of typical pneumonia, and the child's condition became very critical. Routine treatment and careful nursing, with intranasal oxygen when cyanosis was severe, tided her over until resolution by lysis started on June 6. The temperature now began to remit, and increasing lower abdominal distension suggested localization of the abdominal exudate. On June 10 several ounces of thick yellow pus were discharged from the wound, yielding on culture a pure growth of pneumococci. On June 12, under light ether anaesthesia, a suprapubic incision was made, and 14 oz. of thick odourless yellow pus was evacuated with masses of fibrin. A large drain was left in.

The patient thereafter proceeded to a prolonged but steady convalescence. Pockets of pus higher in the abdomen discharged along the drainage track at intervals. Some delay in complete resolution of the pneumonic consolidation at the left base occurred, but the right lung cleared up rapidly. She was discharged from hospital on July 20, and subsequently left for England with her family. She had lost 12 lb. in weight during her illness, but, apart from emaciation, was convalescing rapidly and had developed a voracious appetite. Dr. Hector Cameron, to whom the child was referred, wrote in October, 1937, that she had made great progress, had put on weight, and had regained the look of health.

Graph showing Fall in Leucocytes after Operation and the Development of Leucocytosis following Pentose Nucleotide Injections



Commentary

Fraser (1931) has suggested that the peritoneal area, as representing a mesothelial space, has peculiar properties of reaction in response to general infection. From observation of cases of so-called idiopathic peritonitis—that is, cases in which no obvious source of intraperitoneal infection can be demonstrated—he believes that the peritonitis is in some respects a salutary feature affording possibilities of an immunity influence. On such a basis pneumococcal peritonitis is explained as a local reaction secondary to pneumococcal septicaemia—a condition that was undoubtedly present in this case, as proved by the subsequent development of bilateral basal pneumonia.

Recovery from primary pneumococcal peritonitis is not unusual, though the mortality rate is high, but recovery in any case of peritonitis where leucopenia and a "shift to the left" mark the immediate post-operative course must be very rare. Piney (1926–7), in his Arris and Gale lectures on the importance of haematology in surgery, points out that recovery rarely occurs in infective processes where there is a progressive fall in the total number of leucocytes with an extreme degree of shift to the left, total absence of eosinophils, and well-marked lymphopenia.

In discussing cell counts in the different types of pneumonia, however, Fleming (1936) has stated that in Type I infection—the usual one in pneumococcal peritonitis according to Bréchot and Nové-Josserand (1931)—although high leucocyte counts are common, low leucocyte counts are found in many patients who recover despite a grave condition at the onset of the disease. He also points out that in young patients recovery may occur with moderately low counts. The remarkable response in the blood picture of this case during the course of sodium pentose nucleotide injections, however, coincided too closely with clinical improvement to be merely accidental.

Wilkie (1931) has advocated the pre-operative injection of *B. coli* and streptococcal vaccine, combined with sodium nucleate, as a useful prophylactic against peritonitis in abdominal operations where there is a risk of serious infection. While the pentose nucleotide preparations have been of special value in the treatment of agranulocytic anginas, they would appear to have also a definite place in the treatment of acute surgical infections in which neutropenia results from the effect of the circulating toxins on the bone-marrow.

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H. Brücke (*Zbl. Chir.*, February 12, 1938, p. 349) states that congenital local giantism in which both skeletal and soft parts are concerned may affect from one to four or various combinations of limbs, or small zones such as the finger, toe, ear, or nose. Macrodactyly is not very rare. The distal is more commonly affected than the proximal part of limbs, and the right more often than the left side; a familial occurrence is very uncommon. The parts concerned are specially liable to be the site of pigmented naevi, lymphangiomata, lipomata, and fibromata. The case is recorded of a man, aged 21, mentally subnormal, in whom the whole of the left leg was enlarged; the shin and calf showed a large capillary-venous naevus and trophic ulceration. Surgical measures—for example, osteotomy to shorten the femur and improve secondary static defects such as scoliosis—are, it is said, unlikely to be successful, for the giant parts have generally an inferior functional capacity and regenerative power. This patient's trophic ulceration dated from attempts to cure by sclerosing injections the varicose portions of the naevus.

ECLAMPSIA

A STATISTICAL REVIEW

BY

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This is an attempt to observe by statistical study certain features in the behaviour of eclampsia in the north-eastern area of Scotland, an area served to a great extent by the Aberdeen Maternity Hospital. A period of five years (1932–6) was chosen so that the number and distribution of the cases would be representative enough for deductions to bear a satisfactory degree of accuracy.

Incidence

TABLE I.—*Incidence of Eclampsia According to Year*

Year :	Jan., 1932	1933	1934	1935	Dec., 1936	Total
Total confinements ..	722	705	789	823	812	3,851
Cases of eclampsia ..	10	13	14	11	13	61
Deaths	0	3	1	0	2	6

In the period under review 3,851 women were confined in the Aberdeen Maternity Hospital. Sixty-one of these had eclampsia (Table I), giving an incidence rate for the hospital of 1.59 per cent. Professor R. W. Johnstone (1932) has stated that "the incidence is usually placed at 1 in 500," and for comparison it is interesting that he found that "the incidence of eclampsia in the years 1923 to 1930 in the Royal Maternity Hospital, Edinburgh, was exactly 2 per cent. of all cases delivered in hospital, excluding abortions." Chamanlal Mehta (1936) records that the incidence of eclampsia in his hospital in Bombay for the years 1929 to 1934 was 0.45 per cent. He further states that "the figures of the Rotunda Hospital, Dublin, in 1930 were 0.5 per cent."

Hospital statistics, of course, give an exaggerated idea of the frequency of eclampsia. No account is taken of the great number of what I may term "extramural pregnancies." In this connexion I tried to estimate the true incidence of eclampsia in Aberdeen for one year by getting the total number of births from the registrar, but I found it impossible to arrive at the total number of cases of eclampsia occurring that year which were treated by the patient's own doctor at home or in a nursing home. Douglas and McKinlay (1935a), discussing maternal morbidity and mortality in Scotland, state: "In the sample of births discussed 0.19 per cent. of the cases were described as having suffered from eclampsia."

Seasonal Incidence

TABLE II.—*Seasonal Incidence of Eclampsia*

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Cases of eclampsia	7	4	8	4	5	4	5	2	5	5	6	6
Deaths.. ..	1	-	-	-	-	1	1	-	1	-	1	1

It will be seen from Table II that during the months October to March (inclusive) there were thirty-six cases of eclampsia, whereas from April to September (inclusive) there were twenty-five cases—an appreciable difference of eleven cases, or 18 per cent. It would appear, therefore, that the onset of cold damp weather was one factor favouring an increase in the incidence of eclampsia in this part of Scotland. A somewhat similar finding has been recorded by Huess (1928).

Age Incidence

TABLE III.—*Incidence of Eclampsia According to Age*

Age Period :	17–20	21–25	26–30	31–35	36–40	41–47
Cases of eclampsia..	6	26	8	14	4	3
Deaths ..	-	-	-	4		2

This table is significant in that forty cases (65.5 per cent.) occurred up to the age of 30 years, whereas twenty-one cases (34.5 per cent.) occurred after that age. But even more obvious is the fact that there was no mortality in the younger group and a very appreciable mortality (28.6 per cent.) in those over 30 years of age.

Gravidity Incidence

TABLE IV.—*Incidence in Relation to Number of Pregnancy*

	Number of Cases	Incidence		Mortality	
				Number	Per Cent.
Primiparae	36	59.02%	73.77%	2	5.55
Second Pregnancy ..	9	14.75%		0	0
Others	6	26.23%		4	66.66

It will be seen that 59 per cent. of all the cases occurred in primiparae, and that 73.77 per cent. occurred in either first or second pregnancies. The much higher mortality in multiparae might be assumed to be due to the existence of some degree of renal disease previous to the pregnancy, a fact I was unable to study accurately. These figures are not much in accord with those for Scotland as a whole. Douglas and McKinlay (1935b) say: "The foregoing table shows that 83.5 per cent. of all cases occurred in primigravidae; 14 per cent. in two-gravidae; and under 3 per cent. among the higher degrees of multiparity. . . . Among all cases of eclampsia 80 per cent. were said to occur in primigravidae."

Type Incidence

TABLE V.—*Incidence in Relation to Labour*

	Number of Cases	Mortality	
		Number	Per Cent.
Ante-partum	31	4 (over 30 years of age)	12.9
Post-partum	26	2 (over 30 years of age)	7.7
Both	4	-	—

Twenty of the twenty-six post-partum cases (77 per cent.) occurred in women before the age of 30 years, and 65.4 per cent. before 25 years of age. Of these post-partum cases 62 per cent. were in primiparae. On the other hand, 50 per cent. of the ante-partum cases were in women over 30. The point I wish to make from these figures is that the ante-partum and post-partum grouping of cases is artificial and should be discarded. It seems that the younger the woman and the less parous the longer does eclampsia with its latent period take to reach its acme, or the later is its onset and the milder its severity.

I would draw attention to the large proportion of post-partum cases in this series. They account for 42.6 per

cent. of all the cases, and it would appear that eclampsia in this area of Scotland is generally of a milder type than that seen in other parts of the country. For comparison I quote from Bourne and Williams (1932a): "It will be noticed that, contrary to the usually accepted belief, post-partum eclampsia (in London) bears a much higher risk than the other forms." I am disappointed that the age factor was not considered in that review.

Distribution of Cases

TABLE VI.—*Town versus County*

	Number of Cases (1)	Mortality		Ante-natal Supervision	
		Number (2)	Per Cent. (3)	Number (4)	Per Cent. (5)
Town	35	2	5.71	15	42.9
County	26	4	15.4	1	3.84

Of the cases of eclampsia 57 per cent. were in town patients and 43 per cent. in county women. The most striking features of Table VI are Groups (3) and (5): where ante-natal supervision was more common the mortality rate was much lower. This is surely a strong point in favour of ante-natal care. The above figures are very disappointing to the county. There is, of course, no excuse for not carrying out pre-natal care; we must recognize the fact, however, that many of the county cases had to travel between thirty and forty miles in an ambulance in a very ill state before admission to hospital. In this connexion it is interesting to note the distances travelled by those county patients who died. They are: Echt, thirteen miles; Peterhead, thirty-four miles; Peterhead, thirty-four miles; Alford, thirty-one miles. This factor of distance is, I feel sure, an added barrier to recovery in the county patients. One is tempted to remark that these patients should come into hospital at an earlier date by their own choice of conveyance rather than by ambulance as the last resort; yet that is the doctor's responsibility. The establishment of rural ante-natal centres would help greatly. Under the new Maternity Services (Scotland) Act, 1937, the compulsory examination of the patient by her doctor at least three times before confinement is a progressive step in this direction.

Illegitimacy

There were ten cases of eclampsia in illegitimate pregnancies—four in county and six in town cases, a total incidence of 16.4 per cent. in the series. Of these ten patients two died (both county), giving a mortality rate of 20 per cent., a figure double that for eclampsia in this review as a whole. This point agrees with the following statement (Professor J. M. Munro Kerr (1933a), quoting Kinloch, Stephen, and Smith): "The death rate among the mothers of illegitimate children for 1918 to 1927 was also, like that of their infants, fully twice as great as among other mothers—namely, 13.2 as against 6.0 per 1,000 births. . . . Death from albuminuria and convulsions was also distinctly higher."

Maternal Mortality

Reference to Tables I to VI shows the relation of mortality to year, season, age, gravidity, labour, and distribution respectively. The effect of illegitimacy is seen in the preceding paragraph. It will be noted that there were six deaths in sixty-one recorded cases during the five years under review. This gives a total mortality rate of 9.84 per cent., which compares favourably with the figures of other hospitals—for example, Hewitt (1933) "succeeded in reducing maternal mortality in the Glasgow Royal Maternity Hospital in 109 cases of eclampsia to 9.1 per cent., the lowest figure yet attained in this hospital, as the type of case received into it is of special severity." Further, Munro Kerr (1933b) states: "In the Scottish returns there is no evident decline in the death rate from the causes included in this group." The figures are:

Total deaths (1925–30)	3,891
Deaths from albuminuria and eclampsia	656 (16.8 per cent.)

The Departmental Committee has arranged the deaths investigated as under:

	Eclampsia
Deaths	544
Percentage	11.6

Foetal Mortality

There were twenty-two children stillborn in the series, a total mortality rate of 36.06 per cent.; including very early neo-natal loss (two cases) the rate is 39.34 per cent. This figure is undoubtedly favoured to a great extent by the large number of post-partum cases (42.6 per cent. of total), and it is far short of that reported by Bourne and Williams (1932b), as follows: "The great risk to the foetus of a mother who has chronic nephritis has long been known, but in toxaemia it is very much less. Some babies are lost by premature induction of labour at a date too early for their survival, while others are born macerated. The total foetal death rate, including neo-natal loss, is from 10 to 15 per cent."

Treatment

The treatment given to the cases in this review followed very closely that which is employed in the Rotunda Hospital, Dublin (Solomons, 1932). Colonic lavage, gastric lavage, and venesection where blood pressure is 160 mm. Hg or over were performed with the patient well under the influence of morphine. A chart was kept indicating the relation of fluid intake to output per day. Thyroid extract (*B.P.*), 1 grain every four hours, was administered as a diuretic. Veratrone, 1/2 c.cm., intramuscularly, was in many cases used as an alternative to venesection.

The obstetric treatment given was induction of labour by rupture of the membranes if near to term. When the patient was in labour it was completed as quickly as possible. Conservative measures were employed only if the patient was unduly far from term and if she responded well to treatment.

Conclusions

1. The incidence rate of eclampsia in the Aberdeen Maternity Hospital over a period of five years (1932–6) was 1.59 per cent.

2. An appreciable difference of 18 per cent. was found between the incidence of eclampsia in the winter months, October to March, and that in the summer months, April to September. This would appear to indicate that the onset of cold damp weather was one factor favouring an increase in the incidence of eclampsia in this part of Scotland.

3. 73.77 per cent. of cases occurred in either first or second pregnancies.

4. The greater proportion of cases (65.5 per cent.) occurred up to the age of 30 years without any deaths. The mortality rate over 30 years of age was 28.6 per cent.

5. Ante-partum eclampsia was as common after 30 years of age as before. The post-partum type, on the other

hand, was much more common (77 per cent. of cases) before the age of 30.

6. There was a most striking difference between the mortality rates for the town (5.71 per cent.) and the county (15.4 per cent.). This was supported by the finding that only 3.84 per cent. of county patients, as opposed to 42.9 per cent. of town patients, received ante-natal supervision.

7. The total maternal mortality rate for this series was 9.84 per cent. This figure was doubled in illegitimate pregnancies.

8. The foetal mortality rate, including neo-natal loss, was 39.34 per cent.

I wish to record my thanks to the staff of Aberdeen Maternity Hospital for putting case-records at my disposal and to Professor Baird for his helpful suggestions.

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SPONTANEOUS HAEMATOMYELIA

BY

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Haematomyelia occurring without any history of injury in otherwise healthy subjects is very rare, and references to it in the literature are scanty. In a larger number of cases a history of slight direct or indirect injury to the spine is obtained, and although in many of them the injury may seem negligible in comparison with the severity of the symptoms, it is not justifiable to include these with the cases of truly spontaneous haematomyelia.

Cases in the Literature

C. Doerr (1906-7) was able to collect only sixty-three cases in his full review of the condition, which comprised all the literature from 1808 to 1904. In thirty-three of these cases no aetiological factors were mentioned, and of the remainder a convincing explanation in the light of modern pathology was available in only three cases. One was said to be due to syphilis, and in another miliary aneurysms of the cord were found at necropsy. In the third case the haematomyelia followed an earlier apoplexy in a man aged 70. J. Lépine (1900), in a review of forty-five cases, suggested that in many instances "fragility" of the spinal blood vessels was present, apart from such vascular abnormalities as aneurysm or arteriosclerosis; but he is cautious in his conclusions, and makes no definite suggestions as to the nature of the fragility. Chevallier and Desoille (1930) discuss six cases of spontaneous haematomyelia in young subjects, five of which came to necropsy. In three of them aneurysmal dilatations of the vessels of the cord were found (one is also included in the reviews of Doerr and of Lépine—that of Liouville, *Soc. de Biologie*, 1872). Of the other two cases one was in a child, aged 2, in whom an endarteritis with thrombosis of the spinal vessels was found, probably due to syphilis. The remaining case showed a generalized hyaline degeneration of the arteries of the central nervous system. Chevallier and Desoille suggest that the most frequent cause of spontaneous haematomyelia in young subjects is congenital syphilis; but apart from the child aged 2 none of the cases they discuss affords very convincing evidence of syphilitic infection. On the available evidence it seems more reasonable to follow the suggestion of Lépine and suppose that a vascular fragility in the nature of a congenital haemangioma or aneurysm is responsible for the majority of cases, at any rate in young subjects in whom there is no evidence of systemic or arterial disease. In Doerr's sixty-three cases the incidence is much higher in young subjects than in old ones, as will be seen from the following figures:

Age 0—10	.. 1 case	Age 41—50	.. 4 cases
11—20	.. 11 cases	51—60	.. 2 „
21—30	.. 22 „	61—70	.. 6 „
31—40	.. 12 „		

In five cases the age was not given, but 79 per cent. of the above occurred under the age of 40, and, so far as can be made out from the review, most of the subjects had previously been healthy.

Haemangiomatous malformations of the spinal vessels occasionally give rise to symptoms of spinal compression, and they are not uncommonly encountered in neurosurgical clinics when laminectomy is performed. Spontaneous rupture of these haemangiomata is, however, a very rare occurrence. Cases have been recorded by Ohlmacher (1899), Lissowsky (1933), Buckley (1936), and Richardson (1937), the clinical features of which resembled the one recorded below, and in which the haemangioma was definitely demonstrated at necropsy. Richardson also describes a case due to syphilitic endarteritis of the spinal vessels.

Aneurysms of the spinal vessels are very rare, but they have been described in association with coarctation of the aorta, and are occasionally found in syphilis and periarteritis nodosa. In comparison with the congenital "berry" aneurysms of the circle of Willis they are practically unknown.

The Clinical Syndrome of Spontaneous Haematomyelia

The onset of paraplegia is nearly always sudden, and paralysis is usually complete within a few minutes. It may accompany a slight exertion, but often there is no history of this. Severe lancinating pain, often of a "girdle" distribution, occurs at and above the level of the lesion, and there is a more or less complete loss of sensation below the level of the haemorrhage, depending upon its size. The pain persists for several days afterwards, and if the haemorrhage extends may change in level and severity.

Apart from injury there is probably no lesion of the cord in which the symptoms develop as suddenly as in haematomyelia. In Doerr's collection of sixty-three cases the onset was sudden in fifty-five, and pain was a prominent feature in thirty-six. The paraplegia is flaccid at first, and the deep reflexes are usually lost owing to the "spinal shock," but an extensor plantar response may sometimes be obtained. In the case to be described the plantar responses remained flexor for a considerable time.

The haemorrhage usually occurs into the central grey matter of the cord, and the sensory changes may resemble those of syringomyelia in cases where the haemorrhage does not extend into the lateral and posterior columns, but it is more common to find a very extensive loss of all forms of sensation in the early stages owing to the "spinal shock" and oedema. Sphincter control is generally lost, and there is complete retention of urine and faeces.

Considerable improvement occurs in patients who survive the initial stages. The spinal shock wears off and the oedema of the cord subsides, with a gradual return of sensation and motor power. In favourable cases there may be little residue beyond a segmental band of anaesthesia, but if the white matter of the lateral and posterior columns has been damaged there will be a much more extensive sensory loss, with spastic paraplegia and perhaps permanent loss of sphincter control. If the grey matter of the anterior horns is damaged, muscular atrophies are a sequel. Death in the early stages is usually due to respiratory paralysis as a result of the upward extension of the haemorrhage involving the cervical cord and origin of the phrenic nerves. It may occur later from urinary or other sepsis complicating the paraplegia.

The case described below presents most of the typical features of spontaneous haematomyelia. Death from respiratory paralysis was averted by the use of a Drinker's respirator, and the symptoms were considerably relieved by repeated lumbar puncture

Case Record

A girl aged 15 was sent into the Staffordshire General Infirmary on March 19, 1937, by Dr. McGeough. The evening before admission she was engaged in household duties when she was seized with sudden severe pain in the back and legs. The legs rapidly became weak, and she had to sit down. Soon afterwards she found that her legs were completely paralysed and numb, and she was unable to pass urine. The site of greatest intensity of the pain was in the mid-dorsal region, and it had a lancinating character like "knife-stabs" shooting round to the front of the chest and abdomen.

On admission to hospital there was a complete flaccid paraplegia, with loss of all sensation except deep pressure up to the fifth dorsal level. Immediately above this there was a narrow zone of hyperaesthesia; above that sensation was normal. The left pupil was larger than the right, but both reacted normally to light and accommodation. The cranial nerves showed no abnormality. The abdominal reflexes and all the tendon reflexes of the lower limbs were absent, but the plantar responses were present, and were flexor. There was complete retention of urine, and the bladder was distended up to the umbilical level. No history of any recent or previous illness or of any injury or undue exertion could be obtained, and before the onset of paralysis there had not been even slight symptoms referable to the nervous system. Radiographs of the dorsal and lumbar vertebral column showed no abnormality.

On the first day in hospital lumbar puncture revealed a deeply blood-stained fluid under a pressure of 290 mm. There was no spinal block. The protein content of the fluid was 360 mg. per 100 c.cm., and the supernatant fluid was not yellow in the first specimen. The Wassermann reaction was negative in the blood and the cerebrospinal fluid. On the second day the pain in the back was still severe, and the cerebrospinal fluid was still deeply blood-stained and under a pressure of 250 mm. On the third day the amount of blood in the cerebrospinal fluid was less and the pressure had fallen to 200 mm., but the level of sensory loss was found to be rising, and some respiratory distress became evident.

On the fourth day there was complete loss of all forms of sensation below the second dorsal level, with severe headache and neck rigidity, suggesting that blood had reached the posterior fossa. Respiratory distress and cyanosis were much more evident, and movements of both chest wall and diaphragm were feeble. The cerebrospinal fluid pressure had fallen to 150 mm., and the blood content was very much less. The patient was put in a Drinker's respirator, and artificial respiration was kept up almost continuously for the next ten days, when it was found that the sensory level had descended to the fifth dorsal segment and breathing was possible without distress or cyanosis. The cerebrospinal fluid was then slightly blood-stained and yellow, and was under a pressure of 120 mm. The paraplegia and complete sensory loss continued for many weeks Some automatic bladder function appeared after about the fourth week, but up to that time there was complete retention. There was likewise retention of faeces, and rectal washouts had to be given.

By May 12 a good deal of recovery had taken place, and the upper limit of sensory loss had descended to the ninth dorsal segment. Deep pressure and vibration sense were present below this level, and pin-prick and light touch could be felt, but they gave rise to unpleasant sensations of the "thalamic" type. Temperature discrimination was poor. There was a constant feeling of "pins and needles" in the lower legs. Some motor power had returned, toe-wriggling and flexion and extension of both ankles could be performed, and the right knee could be flexed and extended. Both legs were very spastic, and the tendon reflexes were grossly exaggerated, knee and ankle clonus being easily obtained. The plantar responses had become extensor. No sphincter control had yet returned. The cerebrospinal fluid was normal.

The patient was seen again on February 12, 1938. She is now able to walk, although with difficulty. Both legs are very spastic, with bilateral extensor responses and knee and ankle clonus. There is no appreciable impairment of any type of sensation, even of segmental character, and there is only an occasional slight impairment of voluntary control of the bladder. Apart from her spastic paraplegia the patient is perfectly well.

The most probable explanation of the aetiology in this case is spontaneous rupture of a spinal haemangioma, and from the evidence which can be obtained from the available literature it is reasonable to suppose that most cases of spontaneous haematomyelia in young subjects are due to this cause. It is possible that a few cases may be due to rupture of aneurysms, but aneurysms of the spinal vessels, unlike those of cerebral vessels, are very rarely encountered, either in the post-mortem room or at operation. In older subjects syphilis of the spinal vessels may be a factor in determining their rupture, but there is little evidence that it is of common occurrence.

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The first congress of the International Society of Cosmobiology will be held at Nice from June 2 to 6 (Whitsuntide). This congress was brought into being by the Medical Society of Climatology and Health of the Mediterranean Coast, with the aid of the International Association for the Study of Solar, Terrestrial, and Cosmic Radiations. On June 4 and 5 the meetings will be continued in Monaco. There will be various scientific and social excursions during the congress, the programme of which includes discussions of astrophysics, the conductibility and ionization of the air and their effects on human beings, and the value of climatology in medicine and botany. Requests for a detailed programme should be addressed to the President of the Medical Society of the Mediterranean Coast, Dr. M. Faure, Rue Verdi 24, Nice. At the end of the congress there will be an excursion to Corsica.

Clinical Memoranda

Intra-nasal Ionization for Hay Fever

A special clinic for the treatment of hay fever by intra-nasal zinc ionization, under my care, was organized in 1937 at the Chest Hospital, Margaret Street, W.1. Owing to the publicity given to this method, and to the successful results obtained by many who had used it, a large number of patients attended. In order to assess the value of this treatment, all those treated were asked to reply to a questionary.

A STATISTICAL SURVEY

Between March and July 860 cases were treated. There were 659 replies to the questionary. Of those replying 20 had only one treatment and therefore will not be included in this statistical survey. The figures are therefore based on 639 adequately treated cases. Of these 639 cases, 80 per cent. were benefited by the treatment—namely, 9 per cent. were free of all symptoms during the season, 35 per cent. were greatly improved, and 46 per cent. were moderately relieved.

The age incidence of the patients who came for treatment was as follows: The majority—namely, 63 per cent.—were between the ages of 20 and 40 years; 20 per cent. were between the ages of 40 and 60 years; 13 per cent. were between the ages of 10 and 20 years; 3 per cent. were over 60 years; less than 1 per cent. were under the age of 10.

The statistical review reveals some interesting facts—for example, although the hay fever was shown to begin under the age of 10 in 23 per cent. of cases, only less than 1 per cent. of patients under that age actually came to the clinic for treatment. Similarly, although in 40 per cent. of cases the age of onset was between 10 and 20 years, only 13 per cent. of patients of that age attended the clinic for treatment. Between the ages of 20 and 40 years the proportion of patients who came for treatment was more than double the corresponding figure for the age at onset—that is, whereas the symptoms were shown to begin between the ages of 20 and 40 years in 30 per cent. of cases, 63 per cent. of the patients treated were of that age. These figures may indicate either that the younger patients are less concerned by the symptoms, or have not the time, inclination, or material means to undertake a course of treatment.

The sexes were represented more or less equally—that is, 55 per cent. male, 45 per cent. female. In over 50 per cent. of the cases there was a definite familial predisposition.

Slightly more than half the patients had symptoms over two months during each season; of the remainder, the average duration of the symptoms was four to six weeks.

COMMENTARY

This survey has proved that impressions based on a limited experience may be fallacious. Until last year, under the impression based on a previous experience of twelve years with a limited number of cases, I recommended a pre-seasonal treatment, whereas the statistics of a much more extensive number of cases have shown that the fullest benefit is obtained when treatment is given either immediately prior to the onset or during the attack. Equally fallacious was the previously recommended strength of the ionization current—between 3 and 5 milliamperes—which I suggested in an earlier article in this *Journal*. At the clinic the best results have been obtained with patients who were treated with a current of 7 to 10 milliamperes.

The number of treatments required and the interval between treatments should vary with each case. Four treatments at weekly intervals are usually adequate, but in many cases it may be necessary to increase the number of treatments. Where asthma supervened during the latter part of the hay fever season it was found that if the treatment for the rhinorrhoea was successful the asthma was generally relieved.

As so many patients had severe ocular symptoms an attempt was made to relieve this by ionization applied directly to the eyelids. A pad of lint saturated in a 1 per cent. solution of zinc sulphate was applied to the eyelid by means of a metal electrode connected to the positive pole, the negative pole being applied to the nape of the neck. A current of 15 milliamperes was given for fifteen minutes. The results of the treatment were so satisfactory that this will be used as a routine treatment during the coming season in all cases with severe ocular irritation.

The numerous applications for treatment during the last hay fever season necessitated the creation of a special organization to deal with the large number of patients. I am indebted to our radiologist and electrotherapeutist, Dr. Orley, who made it possible to treat a large number of patients simultaneously. The medical assistants were concerned only with the packing and unpacking of the nose. Thus, each assistant was able to deal with fifteen to twenty patients in an hour. The actual ionization was supervised and carried out by experienced nurses, each in charge of six to eight ionization sets, so that each nurse was able to deal with twenty-five to thirty cases in an hour.

CONCLUSIONS

(1) Ionization treatment is definitely beneficial in a large proportion of hay fever cases.

(2) The best results are obtained by treatment given just before or at the onset of the symptoms.

(3) The strength of the current should vary between 6 and 10 milliamperes, the weaker current having proved less effective.

(4) Zinc ionization of the conjunctiva may prove to be of considerable benefit in cases of severe ocular irritation.

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Hernia through the Right Dome of the Diaphragm

The following is a report of the case of a planter aged 28 years who was referred to hospital by two doctors with a diagnosis of chronic appendicitis. He gave a typical history of pain around the umbilicus and in the right iliac fossa. He had repeated attacks of this pain, each accompanied by a slight rise of temperature.

CASE RECORD

About two years ago while the patient was in England he suffered from indefinite pains in the loins. He had a series of *x*-ray examinations, which proved negative for renal calculus. A year ago he had a cough which was rather slow in clearing up. His chest was examined radiologically, and his lungs were pronounced to be fairly normal except for a high diaphragm on the right side; the case was diagnosed as pleurisy. Apart from these two mild illnesses the patient had never suffered from any ailment worthy of note except that he sometimes complained of vague "gas pains" on rising in the morning; these were more marked when he was constipated.

Examination.—There was slight tenderness in the right iliac fossa. An indefinite mass which did not move on respiration was felt passing across the abdomen at the level of the umbilicus. Permission was obtained from the patient to perform a laparotomy instead of the usual McBurney's incision. Undue dullness was present over the right lower

lobe of the lung. The heart was normal, as were the temperature, pulse and respiration rates.

Operation.—The abdomen was opened through a low right paramedian incision. The liver presented in the upper part of the wound. The appendix could not be traced, and the incision was enlarged. The liver was displaced downwards and the lower edge was lying below the umbilicus; it was retracted upwards and the following organs were seen: (1) Large intestine twelve to fourteen inches in length, commencing on the right side of the pelvis, proceeding upwards and to the left, being finally invaginated into the peritoneum at the level of the body of the second lumbar vertebra and slightly on the left side. The mesenteric attachment of this visible portion of the large intestine allowed it moderate mobility. No small intestines were visible in the general peritoneal cavity. (2) The stomach, which was normal in appearance. The first portion of the duodenum passed sharply backwards and was lost behind the liver. (3) The liver, which was low in position and very movable. (4) The gall-bladder, which was normal in appearance and in position relative to the liver. (5) A knuckle of intestine which was felt and seen retroperitoneally behind the liver. The abdomen was closed.

Three weeks after the operation the patient was submitted to a thorough radiological examination. The first barium meal was given at 3 a.m.; the second meal was given and the first *x*-ray film taken at 9 a.m. Other films were taken at later intervals. These showed the intestines protruding through an opening in the right diaphragm near the mid-line and withdrawing as they became empty: the appendix is well outlined, and is apparently not diseased. All the small and the majority of the large intestines are contained in a peritoneal diverticulum above the liver. Screening showed the right diaphragm in an unusually high position but capable of movement. The passage of the barium from the stomach along the coils of the small intestines was unusually rapid.

CONCLUSIONS

We wish to draw attention to several unusual points in this case:

1. The vague symptoms, which did not give any suggestion of diaphragmatic hernia except vague "gas pains." The definite and repeated reference of the pain to the right iliac fossa.

2. The occurrence of a hernia through the right dome of the diaphragm, very few cases of which have been reported.

3. A degree of malrotation of the gut which permitted the whole of the small and the greater portion of the large intestines to be contained in the lesser sac of the peritoneum.

4. In spite of the gross degree of rotation of the intestines and presence of the hernia the patient lives a very active life.

Our thanks are due to Major T. J. Hallinan, C.B.E., M.B., B.S., Director of Medical Services for Jamaica, for permission to publish this case, and to Dr. C. Parkin and his department for invaluable assistance rendered in connexion with the *x*-ray examination.

A. L. MCFARLANE, M.B., F.R.C.S.Ed.
W. N. DICKENSON, B.M., B.Ch.

The seventh International Congress of Genetics will meet in Edinburgh in 1939, probably from August 23 to 30. The organizing committee have chosen as president of the congress Dr. N. I. Vavilov, vice-president of the Lenin Academy of Agricultural Science, and director of the Institute of Plant Industry, Leningrad, and of the Institute of Genetics of the Academy of Sciences of the U.S.S.R. The secretary-general is Professor F. A. E. Crew of the Institute of Animal Genetics, West Mains Road, Edinburgh, 9.

Reviews

TWO CONSOLIDATION ACTS

The Public Health Acts. Annotated with Appendices, containing the various Incorporated Statutes and Orders of the Minister of Health, etc. Eleventh edition, in four volumes. Volume I. By Sir Joshua Scholefield, Erskine Simes, M.A., Charles E. Scholefield, and A. N. C. Shelley, M.A., B.C.L. (Pp. 1,426; to be published in four volumes, £16 16s. On thin paper, 2s. 6d. per volume extra.) London: Butterworth and Company, Ltd., and Shaw and Sons, Ltd. 1937.

The Public Health Act, 1936. By H. Samuels, M.A., and Philip Fores, M.A., LL.B., assisted by Dennis Pugh, B.A. (Pp. 550. 30s.) London: Sir Isaac Pitman and Sons, Ltd. 1938.

It is over sixty years since Lumley's *Public Health* first saw the light. The tenth edition was published in 1930. An eleventh edition, the first volume of which has now been issued, was, as the editors explain in their preface to the work, clearly inevitable when it became known that there was a purpose to consolidate the accumulated mass of legislation on local government and public health. While it would doubtless have been formally correct to postpone action until a time when it would be possible to survey the new consolidated fabric as a completed whole, nevertheless it was felt that procedure of that kind would ill serve the needs of many users of the book, who would desire its early guidance upon the Public Health Act, 1936, which was due to come into operation on October 1, 1937. It was accordingly decided that the first volume of the new edition should contain this important Act, companioned only by the Local Government Act, 1933, the former supplying the action of the piece and the latter setting out the stage. These two Acts, together with the annotations upon them, make up a volume of such ample size that it has not been found practicable to present comparative tables showing the extent of the numerous repeals.

In Section 101 of the new Public Health Act, which relates to the smoke nuisance, the source of the smoke is no longer, as in the Act of 1875, "any fireplace or furnace," but "any installation for the combustion of fuel." It is explained in the annotation to the section that the present phrase is substituted on account of the extension in the Act of the expression "smoke" to include grit and gritty particles the mechanism for the disposal of which does not usually form part of a furnace. Section 155 of the new Act is of historic interest, inasmuch as it enshrines the proceedings set forth in an adoptive section in the Public Health Acts (Amendment) Act of 1907 for preventing the transmission of a notifiable disease by a book belonging to a public or circulating library. The definition of a "drain" in Section 343 is described in the annotation as simpler and less restricted than that in the Act of 1875, which had been an enigma to many. The definition of "sewer," on the other hand, has been narrowed down, and would, according to the annotation, presumably no longer include the drainage of the fens of Lincolnshire by means of canals. The diseases defined as notifiable are as in the Infectious Disease (Notification) Act, with the omission of continued and puerperal fever. The reasons ascribed in the annotation are to the effect that the former is an obsolete term, and that puerperal pyrexia, which includes the latter, is notifiable by regulation. Among sections of medical interest in the Local Government Act, 1933, are those dealing with the appointment and status of medical officers of health.

The volume is excellent in form and admirably produced throughout, as befits a classic.

The Public Health Act, 1936, by Messrs. Samuels and Fores, is a full exposition of the statute, the 347 sections being taken up seriatim and annotated. In preparing this large work the authors have had it principally in view to provide for the needs of their fellow-members of the legal profession in both its branches and of those who have to administer the Act. As, however, a knowledge of public health law is necessary to many others besides local government officials and lawyers, the book should be useful also to architects, surveyors, builders, public works contractors, and members of local authorities, as well as to medical officers of health and other members of the medical profession who are actively engaged in combating disease or insanitary conditions or promoting child welfare. The introductory pages include a comparative table showing by what provisions in the Public Health Acts, 1936 and 1937, the principal enactments thereby repealed are reproduced.

PROCTOLOGY

The Principles and Practice of Rectal Surgery. By William B. Gabriel, M.S., F.R.C.S. Second edition. (Pp. 364; 9 coloured plates; 162 figures. 28s. net.) London: H. K. Lewis and Co., Ltd. 1937.

The second edition of Mr. Gabriel's book is, like its predecessor, a valuable contribution to proctology. The work is based on the well-established teachings of St. Mark's Hospital, and the new edition has been thoroughly revised and brought up to date, with the addition of several new chapters on surgical anatomy, injuries of the rectum, and sarcoma of the rectum. The introductory chapter on surgical anatomy includes a description of the ano-rectal musculature which gives the reader a clear and practical conception of the principles and treatment of many of the minor ano-rectal conditions, especially fistula in ano. The important details in diagnosis, preparation, treatment, and after-treatment are plainly presented, and the need for careful attention to these details is stressed and discussed. The illustrations throughout the book are excellent. The chapter on carcinoma of the rectum is outstanding, more especially with regard to spread and prognosis. The details of the operation of one-stage perineo-abdominal excision and the after-treatment are lucidly described.

This book, which is devoid of tiresome repetition and unpadded with useless and confusing text, can be strongly recommended to students, general practitioners, and surgeons as a sound practical guide to the surgery of the rectum.

STUDY OF THE SKELETON

Dixon's Manual of Human Osteology. Revised by E. B. Jamieson, M.D. Second edition. (Pp. 465; 180 figures. 21s. net.) London: Humphrey Milford, Oxford University Press. 1937.

The second edition of this book, revised by Dr. E. B. Jamieson, is an excellent memento of the late Professor Francis Dixon and one of the best testaments of his devotion to the descriptive aspect of anatomy. Written in a clear and attractive manner, with the use of the Anglo-Saxon equivalents of the Latin or Greek anatomical terms, and in conformity throughout with the B.R., or Birmingham Revision, nomenclature, it is certain to meet with a favourable reception. Dr. Jamieson has rendered a signal service in bringing about this change in nomenclature, which was much desired by the original author and will greatly facilitate the use of the book by junior medical students, and he has accomplished the change without any material departure from the primary scheme and the easy fluent style of his predecessor. Where in conformity with recent advances in knowledge and requirements of the medical curriculum changes have been deemed necessary, certain sections have been rewritten or amplified and new illustrations, including some excellent *x*-ray photographs, have been introduced. Certain points in the anatomy of the soft parts have also been included, such as the relation of ligaments to bones (Dr. R. Walmsley) and some general relations of the skeleton to the thoracic and abdominal viscera, which are best learned when a student is studying the bones for the first time with the help of a living model or by palpation on his own body.

In general we should like to have seen more references than are already made to applied anatomy—for example, some allusions to the diagnosis and effects of fractures and dislocations of bones, which can well be introduced at the stage when a student is first studying the bones and greatly add to the interest of his work. It is, however, a matter on which there is a difference of opinion as to the period of study in which this information should be imparted, but there are many who think the sooner the better, though they are well aware of the practical difficulties which hinder the insertion of such matter in the way of paragraphs containing "titbits" of information in small print or in the form of footnotes. One other item which would have been very helpful is some good illustrations showing the microscopic structure of developing bone and some reference to the biochemistry of bone formation, in view of the importance of this knowledge in relation to the proper treatment of certain diseases, defects in the growth of bone, and the union of fractured bones.

The work, considered as a whole, is excellent, and it should serve not only as an introduction to the study of the skeleton but as a most valuable book of reference.

PROGRESS IN PATHOLOGY

Recent Advances in Pathology. By Geoffrey Hadfield, M.D., F.R.C.P., and Lawrence P. Garrod, M.D., F.R.C.P. Third edition. (Pp. 420; 65 figures. 15s.) London: J. and A. Churchill, Ltd. 1938.

The third edition of *Recent Advances in Pathology*, by Professors Hadfield and Garrod, maintains the high standard of the former editions published respectively four and six years ago. The authors have adhered to their main purpose to present recently acquired knowledge of disease processes in a form useful to the student of medicine. And by student it is obvious they have had in mind the unqualified student. Bacteriology and haematology have been dealt with in other volumes of the series, so that the pathology consists largely of morbid anatomy, histology, and some pathological physiology. The first chapter is new, and deals with the localization of infection and the nature and significance of bacterial allergy. The sections describing the pathology of rheumatic fever, lobar pneumonia, and glomerular nephritis have been rewritten and brought into line with the principles expounded in the first chapter. The other entirely new chapter is the third; here the potentialities of undifferentiated mesenchyme are described. The chapters on experimental cancer research have been largely rewritten, and they now include sections on chemical carcinogenesis and hereditary predisposition, and they conclude with a review of the present position of the cancer problem as a whole. The authors do not accept the "virus theory"

of the cause of cancer in general, and suggest as a working hypothesis "that malignant disease is not aetiologically a single entity at all, but a type of reaction to a variety of stimuli, usually chemical and possibly sometimes microbic."

The main skeleton of the book has been retained, but every chapter and most sections show evidence of careful revision. To make room for the new material two chapters and five sections on subsidiary subjects and a good deal of introductory matter have been omitted. In the next edition the authors might consider so re-grouping the chapters that the deficiency diseases, pernicious anaemia, and the ductless glands come together. By setting their own bounds the authors have to some extent simplified their difficult task of selection, and with the needs of students in mind they have retained enough introductory and explanatory matter to stress the importance of the new knowledge and to put it in its proper perspective.

It is an axiom of good teaching that the instruction should be clear, connected, and as definite as possible. It is better to have a definite wrong view than a muddled one that may be right. The only serious criticism of this book is that the authors have inserted too many contradictory opinions and hypotheses without giving sufficient indication to the student which of them he should believe. The book is complementary to the textbooks of pathology; it still keeps ahead of them, and serves the very useful purpose of emphasizing activity in pathology and advance in pathological knowledge.

FITTING PEARSONIAN CURVES

Frequency Curves and Correlation. By W. Palin Elderton, C.B.E., F.I.A., F.F.A. Third edition. Pp. 271; 6 tables. 12s. 6d. net.) Cambridge: University Press. 1938.

We have received a copy of the new edition of Sir William Elderton's *Frequency Curves and Correlation* now published by the Cambridge University Press. The first edition of the book was a slender volume written more than thirty years ago by a young actuary under the spell of Karl Pearson's genius and hoping to interest his professional colleagues in Pearson's methods. Subsequent editions have corrected errors and incorporated improvements and extensions of the Pearsonian family of curves, but follow closely the original plan. As a guide to the fitting of Pearsonian curves to statistical data the book has neither superior nor equal. The examples chosen are actuarial, and the mathematical proofs of the several formulae require more knowledge of algebra than most medical readers have. But actuarial terms are clearly defined and the arithmetic of the fittings is given in such careful detail that an intelligent person who knows nothing of actuarial work and little of algebra can use the book without embarrassment. Curve-fitting occupies more than half the book; the remainder deals with correlation, sampling errors, and goodness of fit. Here the author competes with many writers; he is always lucid, and all he says bears the stamp of wide practical experience. This section, however, has not the unique value of the first part. No doubt some statisticians of repute now deprecate the amount of energy devoted to fitting Pearsonian curves, but those who are primarily interested in graduation—that is, in the replacement of irregularities, due to unsystematic errors or imperfections, by a regular "curve" or function which can be systematically computed and does as little violence as possible to the data—will reply that no better system than Pearson's has been found.

Notes on Books

Myocarditis: The St. Cyres Memorial Lectures is published by Eyre and Spottiswoode at 10s. 6d. In this book six lectures given at the National Hospital for Diseases of the Heart are reprinted. The Lectureship was founded and endowed in 1926 by the late Dorothy Viscountess St. Cyres, the lecture to be given annually on myocarditis. This term was used at the time of the foundation of the lectureship to cover both inflammatory and ischaemic disease of the myocardium, though to-day the tendency is to reserve it for the former. However, the lectures deal with both aspects, though myocardial ischaemia is, as one would expect, the main theme. Some of these lectures were delivered several years ago, and since they concern a subject which has lately developed very rapidly it is inevitable that they will be found in some respects to be out of date. One lecture on beriberi heart is perhaps of greater interest now than at the time of its delivery, since it has recently been claimed that the disease is not confined to the Orient and may occur in the West, particularly in alcoholics. The hypothesis suggested to account for the cardiac condition is, however, challenged by more recent work.

The longer one lives the more one wonders at the vast amount of specialized knowledge which nurses nowadays are expected to acquire. From the available literature it would appear that an even higher standard is sought in the United States of America than in this country, but this supposition is not backed by any positive knowledge on the writer's part. A question one would like to ask is, How many nurses, in point of fact, are there with their heads crammed with all this theoretical knowledge, and how did the comparatively numerous other type whom one comes across not so infrequently ever manage to get their certificates for registration? These thoughts were prompted by a survey of *A Text Book of Surgical Nursing*, by Dr. HENRY S. BROOKES (Kimpton, 12s. 6d.). It seems to us after reading this book that it would carry most medical students through their final surgery examination. It is full of detail and the illustrations are excellent.

Mr. H. ST. JOHN RUMSEY, speech therapist and lecturer in speech therapy at Guy's Hospital, has written a useful small book on *Clear Speech for Stage, Platform and Pulpit* (Frederick Muller, 3s. 6d.). His exact purpose is important. He thus states it: "Clear speaking by lecturers and public speakers on the platform, stage, and in the pulpit is rapidly becoming a lost art; at the same time the elocution business is booming. . . . This little book is intended to explain the difference between teaching recitations to children and the art of clear speaking to men and women, between elocution and speech training." The aims of a good speaker should be three: to be heard, to be understood, to be remembered. This threefold standard is kept in mind throughout, and the author's explanations, instructions, and suggestions are not only practical, as resulting from large experience, but simple, concise, and clear. It is possible to differ from him with regard to an occasional detail—as when he advocates the total abandonment of aspiration in pronouncing "wh," or seems to approve the introduction of an "r" sound in the most open vowels—for example, "ar" for "ah"—but if all who have to speak in public were to follow broadly his teaching life would be happier both for them and for those who have to listen.

After an interval of nearly twelve years a new edition has been published by the Oxford University Press of *Histological Technique*, by H. M. CARLETON, with whose name appears that of E. H. LEACH as joint author. The methods of examination described are for normal tissues, morbid changes, and the identification of parasites. We noticed the first edition very favourably on October 2, 1926. The price of this useful book is 17s. 6d.

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VIRUS IMMUNITY

Some forty years ago Béclère, Chambon, and Ménard[1] passively immunized heifers against vaccinia virus by the injection of serum from immunized animals and gave the first convincing proof that antibodies played a part in the mechanism of immunity to a virus. And although from time to time since then attempts have been made to minimize or deny the importance of antibodies in virus immunity, the great mass of evidence collected since the experiment of Béclère and his colleagues has stressed the importance of the humoral factor. In the case of specific resistance to bacterial infection we have a fairly clear idea of the way antibodies help to ensure the immune state. Neutralization of soluble toxins, the preparation of the bacteria for phagocytosis and intracellular destruction, or more rarely for extracellular lysis, are some of the functions of bacterial antisera which are recognized and have been extensively studied. What part does antibody play in preventing infection by a virus? In order to understand this it is necessary to bear in mind certain differences that exist between this class of infecting agent and bacteria. Apart from their smaller size viruses differ from bacteria in their cultural requirements; they are unable to multiply apart from living cells and appear to be highly specialized intracellular parasites. Some might object to the use of the term "parasite" in connexion with viruses, particularly in view of the recent work of Stanley in America and Bawden and Pirie in this country, which demonstrates to the satisfaction of most workers that some plant viruses are heavy proteins which can be obtained in a para-crystalline form. But both plant and animal viruses behave in many essential ways like living things, and, as Burnet, Keogh, and Lush[2] point out in their recent monograph on the immunity reactions of viruses, they can be most usefully considered as minute, organized, living micro-organisms—at all events so far as the problems of immunity are concerned.

There is as yet no evidence that viruses elaborate soluble toxins, as do some bacteria, so that any antitoxic action on the part of antiviral sera does not come into the picture. Does the antiserum prepare the virus for phagocytosis and intracellular destruction, or does it so change the virus that it cannot enter the susceptible cells or multiply if it gets inside them? Béclère and his collaborators[3] expressed themselves in doubt as to whether the specific antibody had a direct virucidal action or whether it altered the tissue cells, rendering them resistant to infection: quite recently Sabin[4] has supported the latter contention. There is no reason to suppose that the protective antibody has any direct virucidal action, and, as Bedson[5] has pointed out, there is as yet no convincing evidence that virus is sensitized for destruction by phagocytes or by complement. Burnet and his colleagues are satisfied, as others before them, that union between virus and protective antibody does take place, but all are agreed that this union is readily reversible, although prolonged contact may lead to its becoming firmer. In the light of our present knowledge—or lack of it—one can suppose, as Burnet and his colleagues do, that as the result of this union with antibody the virus is hindered from entering susceptible cells or from multiplying should it succeed in reaching that intracellular environment essential to its growth.

So far as the reactions of the viruses and their antisera *in vitro* are concerned there is ample evidence that these differ in no fundamental way from what has been found in the case of bacteria or any other antigen-antibody system. Apparent differences, as Merrill[6] has shown, are due to the small size of viruses. With such minute things a much greater number is required than in the case of bacteria to obtain that concentration of antigen necessary for the demonstration of precipitation, agglutination, or complement fixation. But given that concentration, these immunological reactions are available for work with viruses, and, as in the case of bacteria, they can be used either in the identification of viruses or in the diagnosis of disease. In connexion with their employment for the latter purpose, however, there is one point to bear in mind: the search for antibody in the blood of the infected individual is likely to be a more fruitful line of investigation than an attempt to demonstrate virus in his tissue by serological means. It is true that Burgess, Craigie, and Tulloch[7] have demonstrated the value of a precipitin test in the diagnosis of small-pox, in which the known factor was a vaccinial antiserum and the unknown a suspension of the crusts from the suspected case, and more recently Craigie and Wishart[8] have

[1] *Ann. Inst. Pasteur*, 1898, **12**, 837.
[2] *Supplement, Austral. J. exp. Biol. med. Sci.*, 1937, Sept., vol. 15.
[3] *Ann. Inst. Pasteur*, 1899, **13**, 81.
[4] *Brit. J. exp. Path.*, 1935, **16**, 70.
[5] *Proc. roy. Soc. Med.*, 1937, **31**, 59.
[6] *J. Immunol.*, 1936, **30**, 169.
[7] *Med. Res. Counc. Spec. Rep. Ser.*, 1929, London, No. 143.
[8] *Canad. publ. Hlth. J.*, 1936, **27**, 371.

applied the complement-fixation test to the same end. But generally speaking the concentration of virus in virulent material from a case of virus disease will fall below the critical level necessary for its demonstration by a serological test *in vitro*, whereas with a known virus suspension of adequate concentration the search for antibody in the patient's serum should present no great difficulty.

ZINC SULPHATE SPRAY FOR PREVENTION OF POLIOMYELITIS

Since the publication of a series of disasters following specific vaccination in the control of poliomyelitis the attention of workers in this field has been turned to less heroic methods, but whether these are entirely devoid of risk remains to be seen. A further trial of spraying the nose with zinc sulphate solution in an attempt to provide prophylaxis against poliomyelitis has recently been made by a team of Canadian workers.[1] Faced with an outbreak of acute poliomyelitis of considerable magnitude in Toronto in the early weeks of August, 1937, they organized, with the co-operation of the public health services, a comprehensive scheme which involved the setting up of some eighty-nine clinics at different hospitals in the city, at which oto-rhinologists attended to carry out the treatment. A brief but intensive propaganda campaign led to an immediate response of volunteers; although the number of subjects required for the initial experiment was 5,000, of ages ranging from 3 to 10 years, over 6,000 applications were received in three days, the final number being 7,412. Being fully aware of the defects of an earlier experiment of this character the workers so planned the investigation that the test subjects and controls were similar in all respects in so far as it was possible to attain this in human experiments: the numbers and ages were approximately the same and the conditions of exposure and risk of attack were comparable. They chose as the prophylactic zinc sulphate as being less toxic and less apt than the alternative substances so far tested to produce permanent ill effects. The first suggestion that the use of chemicals might be effective in the control of poliomyelitis came in 1935 from Armstrong and Harrison,[2] who showed by their experiments on monkeys that the application of a 4 per cent. solution of sodium alum into the nostrils tended to prevent development of the disease when active virus was afterwards instilled into the nasal passages. Of many chemical substances tested in the same way picric acid and picric alum were found to be the most active. Their findings were confirmed in the following year by Schultz and Gebhardt,[3] who tested forty different preparations on monkeys and came to the conclusion that zinc sulphate, being of simple composition and low toxicity, was most suitable for trial on human subjects; moreover, compared with picric alum, both rate and duration of protection were rather more favourable.

The first human experiments[4] were carried out in the summer of 1936 in Alabama, Tennessee, and Mississippi, where over two million subjects were sprayed with picric alum solution. The spraying was not done in a uniform manner as regards either technique or the number of applications, and the absence of proper controls forbade satisfactory assessment of the results. In the Toronto investigation 1/2 to 1 c.cm. of 1 per cent. zinc sulphate, to which was added 1 per cent. pontocaine and 0.5 per cent. sodium chloride, was sprayed by an atomizer into each nostril on two occasions at an interval of approximately twelve days. Much importance was attached to the technique of spraying so as to cover the whole area of mucous membrane, and a team of oto-rhinologists carried out the work. Most of the children suffered temporary discomfort, such as headache, nausea, and occasionally vomiting, while a few complained of stiffness of the neck or severe transient pain between the eyes. A rise of temperature for a few hours was common. Reactions as a rule were more frequent and more severe in the older children. Despite these unpleasant immediate effects, no less than 88 per cent. returned for the second spraying. Loss of smell was observed in just under one-quarter of the number treated. If anosmia is taken as the criterion of complete spraying of the whole area of the nasal mucosa the technique employed must be regarded as faulty. More recently Pentecost[5] has described a method of spraying whereby he claims that anosmia follows in 100 per cent. of cases treated. He anaesthetizes the nasal mucosa with 0.25 per cent. pontocaine and 0.25 per cent. ephedrine five minutes before the application of zinc sulphate solution; during spraying the patient is in the dorsal recumbent position, which is maintained for a full minute to secure even distribution of the solution over the mucous surfaces. The Toronto oto-rhinologists heard of Pentecost's results while the investigation was in process, but decided not to change their method, which to them appeared satisfactory for the majority of cases.

The final results of the spraying in affording protection against poliomyelitis were subjected to detailed analysis. It is enough to state here that

[1] *Canad. publ. Hlth. J.*, 1937, **28**, 523.
[2] *Publ. Hlth. Rep.*, Wash., 1935, **50**, 725.
[3] *Proc. Soc. exp. Biol.*, N.Y., 1936, **34**, 133.
[4] *Publ. Hlth. Rep.*, Wash., 1936, **51**, 203.
[5] *Canad. publ. Hlth. J.*, 1937, **28**, 493.

among the 4,713 children sprayed eleven cases of poliomyelitis occurred within thirty days from the second spraying; as one of the eleven occurred between the second and first spraying it is excluded from the analysis, making the attack rate 2.1 per 1,000 cases treated. In the control group of 6,300 children eighteen cases of poliomyelitis (or 2.8 per 1,000) occurred during the same period. The attack rates for the period seven days after the first spraying to thirty days after the second spraying were 1.8 per 1,000 in the test group and 2.9 per 1,000 in the control group. In both sets of figures the differences between the test and control groups were found to be too small to be statistically significant, and the workers were forced to the conclusion that the method of prophylaxis was ineffective in securing the desired end. While nothing has emerged on the credit side, only time can show whether something has to be registered on the debit side. The animal experiments appear to show that the action of these astringent solutions is not a direct virucidal one: it is more probable that a mechanical barrier to the passage of the virus is set up by the formation of a layer of coagulated protein or dead epithelial cells over the olfactory area. Referring to previous experiments with spraying of alum and picric acid we[6 7] suggested that the possibility of the risk of permanent damage to the nasal mucous membrane had not been fully considered. Whether the trauma to the mucous membrane is transient or may proceed to a chronic inflammatory or atrophic condition is uncertain; as experiments indicate that the protective action only lasts for seven to twelve days numerous applications may be found necessary in a prolonged epidemic, and the risk of permanent damage is thereby proportionately greater. Even if the method were proved effective it is unlikely that it would ever be applied in this country so long as poliomyelitis remains a comparatively uncommon disease. For the present one must conclude with regret that a preventive method which held out some hope of success has failed to fulfil its early promise.

[6] *British Medical Journal*, 1937, **1**, 1126.
[7] Ibid., 1936, **2**, 1037.

AN UNEXPECTED BUDGET

In pre-war days, when Parliamentary debates were waged over expenditures and taxes that now seem by comparison such inadequate causes for so much strife, the issues were at least unclouded by what is nowadays a perplexing complication. The nation's accounts were strictly on a cash basis, and all current expenditure had to be met by current taxation. The war changed all that, as it did so many other things; and though we struggled to a cash basis, or one that was very nearly a cash basis, the great rearmament scheme which was initiated last year again produced strong and acceptable arguments for meeting a special expenditure in part from borrowings and only the balance by further taxation. This year the general press indulged with some confidence in pre-budget speculations that Sir John Simon's well-known intellectual gifts and suspected financial skill would enable him to avoid any serious increase in direct taxation, especially in income tax. Some journals besought him to exercise his legal knowledge on the "tax-dodgers," some delivered economic homilies on the ultimate effects of taxation, but all united in suggesting that he would probably be able to avoid increasing the heavy burden of the income-tax payer. The Chancellor has gone his own way, and has declined to follow the easier path so generally sign-posted for him, and whether his Budget be regarded as dull and disappointing, or honest and courageous, will depend on the political views of his critics—and perhaps on the extent of the sacrifices the Budget inflicts on them personally. The easy path is often the wrong one; but the other path is not necessarily right because it is hard. It is of course possible that other considerations have entered into the question besides those of national finance. It may be that both at home and abroad good will accrue from so clear a demonstration that the whole country, including the well-to-do no less than the poor, is determined to shirk no sacrifice that may be required to ensure peace and the preservation of the nation's liberty and rightful position in the world. But the price to be paid is a high one. The very small income-tax payer escapes scot-free, though the increases in the petrol and tea duties will cost many of them a few shillings a year. Once, however, that class of taxpayer is left behind the additional 6d. in the £ imposes a serious burden. To the majority of medical men it will mean practically an additional 10 per cent. to the 1937–8 tax. For instance, for that year a married practitioner earning £1,000 a year would, apart from special allowances, be liable to pay £132 10s. income tax; the same circumstances in 1938–9 will extract £144 12s. 6d. That in itself is an unpleasant enough addition to a year's expenses without taking into account the additions to the cost of petrol used for the work of the practice and of the tea consumed by the household. True the Chancellor promises to give a small increase in the depreciation allowance, but that is a loan rather than a gift, because the more the car owner received by way of depreciation allowances the less he obtains a year or two later when he replaces his car.

Probably the most general feeling with regard to the Budget is one of disappointment that, nearly twenty years after the end of the war that was to end war, our national finances should be so swollen and personal incomes so reduced by the effort, however necessary, to avoid another war or at least to be ready to meet one if it should come upon us. That necessity is of course the overriding consideration in which there must be almost universal agreement; what is open to argument is the proper ratio between borrowing and taxation as the only sources from which the special expenditure can be met. The decision of the Government is a stern one, and the Chancellor of the Exchequer did not exaggerate when he referred to "the dogged determination and dauntless courage" which it would demand from the nation's taxpayers. Fortunately or unfortunately, it is not possible to solve such questions by trial and error. A Government stands or falls by its major Budget decisions, and no substantial alteration in the Chancellor's proposal is at all likely. It remains for citizens to shoulder the additional burdens with what grace and fortitude they can muster, and hope that so notable a proof of determination will not pass unnoticed by those who have it in their power to help or hinder the cause of international peace.

THE PLANNING OF MATERNITY HOSPITALS

An interesting paper on this subject by Dr. Thomas Orr, the medical officer of health for the borough of Ealing, was read to the Royal Sanitary Institute on April 21; the paper included an account in some detail of the construction of the Perivale Maternity Hospital which was opened in October, 1937. Dr. Orr advances sound reasons for dissenting from the recommendation of the Departmental Committee on Maternal Mortality and Morbidity (1932) that "new maternity accommodation should, when practicable, be associated with general hospitals." It is now, however, generally accepted that this recommendation is not in accordance with the lessons of experience, and that whatever may be the case with regard to other special departments of medicine, midwifery on a large scale demands a particular specialized environment which can best be provided through an independent organization. The view is generally held in the Public Health Service that in planning a maternity hospital the governing consideration must be the exclusion of known cases of infection and the prompt and effective segregation of all intern cases in which the suspicion arises that infection is developing. It is a regrettable fact that outbreaks of puerperal sepsis, of limited extent, still occur from time to time in our maternity hospitals, particularly, though not exclusively, in those whose layout does not comply with the requirements which are now generally accepted. A maternity hospital lacking isolation accommodation in detachment from the main building is an anachronism—not merely an interesting survival but a positive peril to the lives of the women who are entrusted to its care. The complete isolation of cases of suspected infection which arise within the hospital is a comparatively simple problem; the management of cases which are sent to the hospital when openly or potentially infected calls for special arrangements. All large maternity hospitals are not infrequently called upon to receive women in labour who are sent in as "emergencies" by practitioners who may be unknown to the members of the hospital staff. Such cases must be regarded as potentially infected and therefore as sources of serious danger. These cases should be dealt with in a delivery room which is not used for the general purposes of the hospital, and subsequently nursed in an observation ward until it becomes clear either that frank infection is present or that the patient has escaped the risk. Unless the most stringent precautions are taken in dealing with "emergency" cases the defences of the hospital will at times be scaled, with results disastrous to the normal cases whose safety is the greatest of all its responsibilities.

INJECTION RISKS

A fatality in Germany after an injection directs attention once again to the sterilization of syringes. What is the simplest procedure which will obviate all risk? After an injection of luminal into the thigh, the patient developed gas-gangrene and died; he was suffering from a serious attack of pneumonia. While the risk of death from this alone was material, the assumption apparently made by Jungmichel and his colleagues[1] was that gas-gangrene began at the site of injection and quickly caused death. The interesting point is that typical *Cl. welchii* were found in the 70 per cent. alcohol in which the syringe was kept. An inquiry at many hospitals showed that in Germany—as probably in this country—syringes and needles are kept in alcohol as a routine in the wards, being boiled between successive injections or merely washed with alcohol. As this method has the authority of a number of textbooks and was taught in many universities, the medical man was finally exculpated. It is emphasized in the report that Koch as long ago as 1881 showed that anthrax spores resist alcohol, and that Wanke in 1926 traced a death from gas-gangrene to *Cl. welchii* spores which were present in the alcohol in which the syringe had been stored. Dalrymple-Champneys[2] and Garrod and Keynes[3] have pointed out the danger of trusting to alcohol for disinfection; in certain conditions staphylococci may survive even for several hours, and spores have been found in material which had been immersed in spirit for twenty years. C. G. Coulthard and G. Sykes, in a review of the literature recording infection by spore-bearing bacteria, stress the failure of ordinary alcohol to kill spores. They found that by adding 1 per cent. of various acids or alkali, or a cresol derivative, the destructive power for spores was

[1] *Münch. med. Wschr.*, 1938, **85**, 125.
[2] *Proc. roy. Soc. Med.*, 1936, **29**, 476.
[3] *British Medical Journal*, 1937, **2**, 1233.
[4] *Pharm. J.*, 1936, **137**, 79.

considerably increased. Jungmichel and his colleagues state that the risk of gas-gangrene must be small, for though many deaths from gas-gangrene or tetanus following hypodermic injection are recorded, cases of this kind are very rare in the myriads of injections carried out all over the world. They mention that to every experienced hospital superintendent the occurrence of local sepsis after injection is a well-known phenomenon. They further conclude that since the spores of *Cl. welchii* occur in all garden soil and dust they must be injected very often by patients or by doctors in private practice away from the sterilization resources of a big hospital, and that the spores do not germinate unless the condition of the tissue favours this. They therefore warn doctors against repeated injections at the same spot, or injection into the buttock at a place where the muscle is subject to injury in ordinary life. The question then arises, What should replace the condemned practice of storing syringes and needles in alcohol? The ideal is to autoclave every syringe and needle after every injection—an ideal unattainable in practice. The authors suggest that in hospitals syringes and needles should be autoclaved or sterilized by dry heat, and each one stored, until used, in a dust-proof package. For the doctor in practice the problem is a difficult one; ordinary boiling in water is not sufficient, and the authors finally recommend boiling for ten or fifteen minutes in water containing 3 per cent. soda. Most bacteriologists will agree with the general argument of the German writers, and will advise the prudent practitioner who consults them to boil the syringe and needle for a few minutes in water containing a little sodium bicarbonate, sodium hydroxide, or lysol, and thoroughly to wash the syringe through with sterile water before drawing up the solution to be injected.

RHEUMATIC HEART DISEASE AND THE VAGUS NERVE

For many years the activity of rheumatic carditis in childhood has been judged by the frequency of the pulse as much as by anything else, and a persistently high pulse rate is usually accepted as evidence of marked myocardial damage. A further refinement has been introduced by the electrocardiogram, and a prolongation of the P R interval is now held to be diagnostic of rheumatic heart disease in young subjects provided that syphilis can be ruled out. Dr. J. D. Keith in a recent communication[1] has brought forward evidence that over-stimulation of the vagus is the cause of this change, and accounts, he suggests, for the prolonged P R interval in mild cases of chorea and arthritis in which there is no clinical evidence of carditis. He found that injection of atropine definitely shortened the P R interval in these cases. Similar experiments were carried out with adrenaline, but the large doses that had to be administered did not decrease the P R interval in rheumatic children to the same extent as did atropine, but the decrease was greater than that produced in control children. Another piece of evidence that Dr. Keith brings forward is the fact that abdominal pain and vomiting are not uncommon in children with rheumatic fever, and in the absence of pericarditis, pleurisy, or cardiac failure in such cases he believes the symptoms to be due to over-stimulation of the vagal nerve supply to the gastro-intestinal tract. The origin of the over-stimulation of the vagus appears to be obscure. Certain evidence points to a peripheral abnormality, and it seems more likely that the site of over-stimulation of the vagus is at the nerve-endings rather than at the centre. Dr. Keith quotes experiments in which severe heart damage with areas of fibrosis in the muscle followed the administration of acetylcholine to dogs: acetylcholine, it will be remembered, is liberated at the nerve-endings of the vagus when it is stimulated. Perhaps in rheumatic fever there is some derangement of the humoral mechanism for transmitting vagal impulses. Dr. Keith is continuing his investigations from this point of view, and meanwhile his attractive theories will certainly receive attention from other workers.

[1] *Quart. J. Med.*, 1938, **8**, 29.

SPONTANEOUS HAEMATOMYELIA

In contrast to vascular lesions of the brain, vascular lesions in the spinal cord are rare. Trauma has long been accepted as the most common cause of haemorrhage into the spinal cord, but recently doubt has been cast on this view by Jefferson, who found that haemorrhage was not a feature of cases in which there was a fatal injury to the spinal cord. It appears likely that in many cases trauma acts only by precipitating a haemorrhage into the cord from vessels in which there is a congenital or acquired weakness of the walls. It is tempting to draw an analogy between such cases and those in which intracranial subarachnoid haemorrhage occurs from rupture of a "berry" aneurysm in the circle of Willis, but aneurysms of the spinal arteries are exceedingly rare. Developmental malformations of these arteries are, however, known to play a part in the production of spontaneous haematomyelia, and in one of Dr. J. C. Richardson's four cases,[1] three of which came to necropsy, bleeding from an angiomatous malformation of a spinal artery in the lumbar region was proved to be the cause of the haemorrhage. In another of his cases there was a syphilitic lesion of the spinal vessels, one of which had ruptured. In the third case the source of the haemorrhage could not be determined. As in all vascular lesions of the nervous system the onset of symptoms is sudden, and in spontaneous haematomyelia it is unusual to find any previous history suggestive of vascular disease. This may be explained by the fact that the age incidence, as opposed to that in cerebral vascular lesions, is much lower, the greatest number falling in the third and fourth decades. In the case recorded in the present issue by Dr. MacDonald Holmes (p. 946) the patient was a girl of 15 years who, following sudden severe pain in the back and legs, rapidly became paralysed in both legs and developed complete retention of urine. This severe pain, often of a girdle distribution at a segmental

[1] *Brain*, 1938, **61**, 17.

level, followed by rapid onset of paresis either of both legs, or of arms and legs, according to the level of the lesion, with complete loss of all forms of sensation below that level, is almost diagnostic of haemorrhage into the spinal cord. In Dr. Holmes's case it must be assumed that there was haemorrhage also on the surface of the spinal cord, because lumbar puncture produced a deeply blood-stained cerebrospinal fluid, whereas in the cases reported by Dr. Richardson in which the haemorrhage was central the cerebrospinal fluid did not contain blood. The prognosis in spontaneous haematomyelia varies according to the level of the haemorrhage as well as with the cause. In Dr. Holmes's case, in which the sensory level was as high as the second dorsal segment, respiratory distress made the outlook appear hopeless, but by the use of the Drinker respirator, in which the patient was kept for ten days and artificial respiration maintained until the sensory level dropped to the fifth dorsal segment, and easy respiration was once more established, the expected fatal outcome was averted. Although the paraplegia persisted and sensation returned only slowly, the ultimate result was fairly good, as eleven months later the patient was able to walk, though with difficulty, and bladder control was practically unimpaired. Dr. Richardson's fourth case, that of a man of 38 years, also survived his haemorrhage into the cord, examination fourteen months after the onset showing only a residual weakness and rigidity of the muscles of the arms and legs. The prognosis in cases in which a fatal outcome does not result immediately from shock or respiratory paralysis, or within a few weeks from secondary infection of the urinary tract, may therefore be not too bad. It is unlikely, however, that complete recovery of function will take place, owing to gliosis of the haemorrhagic area in the cord; this may result in a clinical picture not unlike that of syringomyelia.

AIRCRAFT REGULATIONS, 1938

On July 1 next the Public Health (Aircraft) Regulations, 1938, will come into operation. The document embodying these regulations defines the duties and powers of medical and other officers at aerodromes with regard to aircraft arriving or leaving; also the duties of commanders of aircraft. The diseases on which special stress is laid are plague, cholera, yellow fever, typhus, and small-pox. If, for example, an aircraft should arrive with a case of plague on board the following procedure must be observed. The aircraft is inspected and passengers and crew medically examined; the sick immediately disembarked and isolated; all other persons placed under surveillance or, in exceptional cases, isolated for a period not exceeding six days. Should the aircraft arrive at a "sanitary aerodrome" further measures are prescribed. Here it should be stated that a sanitary aerodrome is one provided with an organized medical service with a medical officer and at least one assistant; with a place for medical inspection; with either a laboratory for examination of suspected material or with equipment for taking and dispatching elsewhere such material; with facilities for isolation, transport, and care of the sick, for separate isolation of contacts, and for the carrying out of prophylactic measures; with apparatus for disinfection, "disinsecting," and "deratization"; with a sufficient supply of wholesome drinking water; and with a proper and safe system for the disposal of excreta and refuse and for the removal of waste water. Following the arrival of a plague-infected aircraft at such an aerodrome, bedding, soiled linen, and other articles are cleansed of vermin and, if necessary, disinfected; merchandise, if thought liable to harbour rats or fleas, is treated at the discretion of the medical officer; such parts of the aircraft as may be considered infected are cleansed of vermin, and, if necessary, disinfected; and the medical officer may require the aircraft to be freed from rats. Similar courses of procedure are laid down for observation in the cases of the other diseases named. The issue of these regulations marks a further advance in the provision of health services adapted to conditions of to-day.

HEALTH IN INDUSTRY

The object of the Industrial Health Education Society has been concisely put by its president, Lord Horder, in a letter to employers. "Our aim is to give the workers information how they can best safeguard their health against the sicknesses and diseases which affect them in the course of their employment, and on health matters generally." The annual report for 1937 includes an article reprinted from the periodical *Labour* as an exposition of the Society's work. In this the general secretary, Mr. James Mackenzie, discusses the gigantic wastage caused by sickness and disablement, with a loss every year of approximately 28,000,000 weeks to industry. "Experience has shown that almost every advance in industrial methods means the birth of some new baffling health problem, and that tens, perhaps hundreds, of workers will suffer, and many even die before effective preventive measures can be evolved." In combating the scourge of occupational sickness simple rules of hygiene are not always enough; specialized information has to be given so that the worker may learn how he can make himself immune to the dangers of his job. Much of this health instruction is provided by the Industrial Health Education Society. During the fourteen years of its existence over 6,000 health talks have been given. After each lecture individual health problems arising out of the employment are discussed and the best-known methods of combating the particular perils of certain industries are dealt with. The office is at B.M.A. House, Tavistock Square, W.C.1.

Professor F. R. Fraser will deliver the Croonian Lectures before the Royal College of Physicians of London, Pall Mall East, S.W., on May 24, 26, and 31, at 5 p.m. His subject is "The Clinical Aspects of the Transmission of the Effects of Nervous Impulses by Acetylcholine."

The Earl of Athlone, Chancellor of the University of London, will open the new Westminster Hospital School of Medicine on Thursday, May 12, at 3 p.m.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

THE TREATMENT OF OTITIS EXTERNA

BY

F. C. W. CAPPS, F.R.C.S.

Classification

The affections of the auricle and surrounding skin, external meatus, and outer surface of the drumhead which are included in the term "otitis externa" may be grouped: (1) according to the infecting agent; (2) according to clinical type. Under the former heading the staphylococci, *albus* and especially *aureus*, are common offenders, aided in the seborrhoeic subject by the acne bacillus and pityrosporon. The haemolytic streptococcus comes a good second. In the former the pilo-sebaceous follicles are usually attacked, and may give rise to a boil; in the latter the deeper layers of the epidermis are infected, resulting in vesicles, fissures, ulceration, diffuse cellulitis, or erysipelas. Infections that occur more rarely are due to various moulds (otomycosis), the Klebs-Loeffler bacillus (croupous otitis externa), the tubercle bacillus, and other organisms. Clinically we have:

(1) Chronic conditions:

Chronic seborrhoeic or "eczematous" dermatitis.
Otomycosis.

(2) Subacute conditions or chronic conditions liable to exacerbations:

Acute seborrhoeic dermatitis.
Acute (impetiginous) dermatitis.
Recurrent furunculosis.

(3) Acute conditions:

Acute diffuse otitis externa (usually a meatitis).
Acute circumscribed otitis externa, a furuncle.
Erysipelas.
Acute haemorrhagic otitis externa.
Perichondritis.

Contributory Causes

These may be constitutional—debilitated or depressed states (test the urine); or local—the seborrhoeic scalp, the irritating and infecting discharge from an otitis media, impacted wax. Finally, trauma may play a part, either self-inflicted by scratching or the use of matchsticks, etc., or due to careless or septic instrumentation.

Although I have put the contributory causes last, they are very important where treatment is concerned. Patients must be warned against scratching and poking their ears, and in the case of babies and young children this may be prevented by splinting the elbows. It goes without saying, also, that any practitioner who examines an ear or uses instruments therein should do so only under direct vision and with aseptic precautions. Local measures alone will not clear up a succession of boils in a poorly nourished or overworked body needing a holiday, and to treat an intertrigo or eczematous meatitis, which are a local spread, and leave the seborrhoeic scalp untreated is a waste of time.

Examination

Before any treatment is undertaken a careful examination must be made of the affected parts, and if possible the drumhead should be inspected. For this purpose a few instruments are essential. An electrical self-illuminating auriscope is a very nice piece of apparatus for the inspection of a drumhead at the bottom of an unobstructed passage, but it is not easy to dry a meatus, remove debris, or insert therapeutic applications through it, and for these manœuvres (which must be done under direct vision) a head-mirror, or head-lamp, and a set of different-sized specula are much better. I prefer the type of speculum shown in the illustration, and usually

known as Keen's pattern; but everyone will have his particular liking in this respect, the only specification being lightness, moderate size, smooth rounding of the narrow or meatal end, and an easy grip for finger and thumb at the larger end. Add to these an aural syringe, a pair of light angled forceps (Keen's pattern, as illustrated, is satis-

factory), one or two fine wool-carriers, and possibly a fine, light, and not sharp right-angled hook for loosening and pulling out debris. Stainless steel, when available, is an economy in the long run. The syringe should be of all-metal type, and should take to pieces for cleaning and greasing. The nozzle should be fine, tapering, and smooth-ended, not bulbous; a "bayonet" fitting allows of its easy and rapid removal for filling the syringe. As the syringe must be controlled by one hand there must be finger rings at the proximal end, and it is wise to choose a syringe of a size that will suit your "span" when full. A word of warning here: always see that the component parts are firmly fitted together before use, and tip the nozzle up and empty the syringe of air. Nothing is more horrible, and to a child even frightening, than a blast of bubbles in the meatus.

When syringing, gently hold the pinna out and slightly upwards with the finger and thumb of the disengaged hand. Carefully cleanse out the auricle first and then approach the meatus cautiously, especially in children, insert the nozzle, and direct the stream upwards and backwards unless there is an obvious boil or tender swelling in that situation. In this direction a fair amount of force can safely be applied without causing pain at the drumhead, and most debris will be washed out by the return flow. For drying, the best quality fine white wool is advisable. Handiest of all are the small cardboard packets of sterilized wool used by dentists, from which as much as is needed can be pulled through a small hole. The wool may be used with forceps as thin pledgets or firmly

rolled in a thin flat piece on to an applicator so as to leave the end soft and fluffy. Sometimes, when the deeper parts of the meatus or drumhead are difficult to see, the swelling of the walls may be reduced by the insertion of pledgets soaked in cocaine 5 per cent. and adrenaline 1 in 1,000 in equal parts.

Differential Diagnosis

So important is the distinction between an otitis externa and an otitis media with mastoiditis that no apology is made for including here three cardinal points of difference. It should be pointed out that in very painful cases it may even be necessary to give an anaesthetic for diagnostic examination.

Post-auricular Oedema due to Furuncle or other Acute Inflammation of External Parts	*Post-auricular Swelling due to Acute Suppurative Mastoiditis*
1. Drum membrane usually intact, and may be normal or only slightly congested.	1. Drum membrane usually perforated, and always shows some of the cardinal signs of suppurative otitis media.
2. Pressure upon tragus and manipulation of auricle causing movement of fibro-cartilaginous meatus usually result in severe pain.	2. Pressure upon tragus and manipulation or movement of fibro-cartilaginous canal cause absolutely no pain.
3. Pressure over the mastoid process just behind the post-auricular sulcus and opposite the orifice of the meatus will, if so directed as not to disturb the position of the auricle, cause absolutely no pain. The oedematous tissues pit deeply under the compressing finger, after which no bone tenderness can be elicited. Pressure at exactly the same point, but directed slightly forwards so as to disturb the auricle, causes severe pain.	3. Firm pressure upon the mastoid process just behind the post-auricular sulcus and opposite the orifice of the meatus usually elicits deep-seated bone tenderness.

Treatment

This is largely a question of cleansing, drying, the application of suitable salves, the treatment of pain, and the prevention of reinfection. Now and again, but very rarely, the knife is needed, and in certain cases specific treatment is indicated. So far as general treatment goes it is probably wise to make it a rule to treat all bad cases of boils or otitis externa, whether febrile or not, in bed, preferably in an institution where all facilities are available. Owing to the tightness of the integument the pain of a bad boil in this region can be maddening—far worse even than a mastoiditis—and the debilitation of the patient is in proportion. The diet should be light and plain, and alcohol should be avoided in the acute stage, as the throbbing set up by even a small quantity may be intense. On general principles an initial purge is advisable. Plenty of fresh fruit and fruit drinks may be given.

In the treatment of pain there is very little to touch aspirin; for inducing sleep aspirin should be followed some fifteen minutes later by a hypnotic. Local and specific treatment will be discussed under each type separately.

For cleansing, plain boiled warm water, a solution of bicarbonate of soda—a drachm to the pint (especially where waxy debris has to be cleared)—boric lotion, or dettol 1 in 20 are all suitable. Dry scabs and scaliness may be removed with the aid of spirit soap. Peroxide, either as drops or lotion, should never be used. There is no particular virtue in it, and the frothiness merely makes the epidermis sodden and tends to spread the infection. No patient with active or potential otitis externa should allow water to get into the ears except—and that not more frequently than is absolutely necessary—for cleansing purposes, after which they should be thoroughly dried, and may even be desiccated by swabs dipped in 95 per cent. alcohol.

Chronic Seborrhoeic Dermatitis

This is common in adults, and takes either the form of dry scaliness, which when shed leaves a glazed sensitive surface, or of thickening and desquamation with infection and fissuring and blocking of the meatus with debris.

The scalp should first be treated with frequent spirit-soap shampoos followed by thorough rinsing, and these should be continued at regular intervals after the parts have returned to normal. At the same time the meatuses should be thoroughly cleansed of debris, if possible without syringing, but better with it if attempts at dry removal are likely to lead to trauma. The skin of the meatus and any affected area on the pinna should then be smeared with a thin film of ung. hydrarg. oxid. flav. or zinc oxide cream. The first cleansing should be done, and the first one or two applications made, by the practitioner himself; he can then train the patient to smear in the ointment on a wool-headed matchstick. To make this, strike the match and then blow it out. A piece of fine wool is then firmly rolled around the blackened end between the finger and thumb, so as to leave plenty of wool over the end. The patient should learn to introduce the applicator with a gentle rotatory movement. When well an occasional smear in both meatuses should be a lifelong routine along with the treatment of the scalp.

Otomycosis

This is not very common in temperate or cold climates, as the growth of the fungus, often an aspergillus, is favoured by warmth and moisture. The mouldy appearance in the meatus is unmistakable. Otomycosis is relatively harmless and painless unless the mycelia invade deeply to the bone or through the outer layers of the tympanic membrane. It may set up an inflammation which leads to secondary infection. The essential in treatment is to avoid water and all oily or fatty applications. Even glycerin favours its growth. Spirit is the only application necessary. As much of the fungus as possible should be carefully swabbed away and the patient given 95 per cent. alcohol drops to instil twice daily.

Acute Seborrhoeic Dermatitis

This is merely a further stage of the chronic condition, with much soreness and fissuring, which may lead to secondary infection and boils or cellulitis. All fissures of the meatus, pinna, and post-aural sulcus should be cleaned, and painted with a strong solution of silver nitrate or cauterized with a silver nitrate pencil. Otherwise the treatment is mainly as above. Unguentum calaminae or the lotion is useful for the pinna and surrounding skin. If there is much exfoliation in the meatus an ointment containing 10 grains of salicylic acid to the ounce may be used, and in very intractable cases one or two skin doses of *x* rays may be tried.

Acute (Impetiginous) Dermatitis

This is most often seen in children, and may be associated with an otorrhoea or dirty scalp. Small pustules form which burst and become covered with yellow crusts.

There is often an associated lymphadenitis. It should be treated as an impetigo, and risk of contagion avoided. The hair should be cut well back from the ear or combed up and held back by a band. The crusts should be bathed away frequently and the raw surfaces covered with a smear of one of the zinc ointments mentioned above or ung. hydrarg. ammon. dil. It is a good plan to cover with a protective dressing at night to prevent scratching and the infection of other areas via the pillow. Any cause of reinfection such as pediculosis or otitis media must be treated. If there is much discharge from the meatus a wool swab may be loosely inserted, but all parts with which it comes in contact should be well greased to prevent it sticking and pulling away the inflamed epidermis.

Furunculosis

Boils in the ear may be single or multiple, and often a single boil will just have cleared up, only to be followed by another owing to the infection of a neighbouring hair or sebaceous follicle by the discharge from the first. The prevention of reinfection is therefore of prime importance. This may be accomplished: (1) by protecting the rest of the meatus; (2) by specific anti-staphylococcal treatment. The meatus should be cleansed, dried, and mopped out with 95 per cent. spirit. In all stages—irritation, swelling, and necrosis—I have found that the best treatment thereafter is to pack the meatus fairly tightly with a wick of half-inch ribbon gauze thickly impregnated with a paste composed of exsiccated magnesium sulphate, 2 parts, and glycerin with 2½ per cent. carbolic acid, 1 part, by weight. This should be changed once or twice in the twenty-four hours, the meatus being carefully cleansed each time, and the process continued as long as there is any swelling or a discharging fistula. The paste, being very hygroscopic, reduces the oedema and congestion, and the wick, by separating the opposing walls of the meatus, prevents cross-infection. If this treatment is continued for long the skin at the entrance to the meatus and over the lobe may become sore and cracked. This is best avoided by smearing with zinc ointment before inserting the wick.

Heat is comforting, and may be applied whether a wick has been inserted or not, either as poultices, a rubber hot-water bottle, an electric eye-pad, or as short-wave diathermy if available. The extravagant claims made for the last-named hardly appear to be substantiated by personal experience, but the comfort of the application is undoubted. As soon as the boil has aborted or has run its course, the core is expelled, and the fistula scabbed over, the meatus should be cleansed with spirit and smeared with a protective coating of ung. hydrarg. oxid. flav., which should be repeated nightly for some days.

The ordinary boil is much better not incised, but now and again a boil will burrow deeply and give rise to a meatal abscess, and then incision may be necessary. If there is no doubt as to the diagnosis, cutting is best done with a small curved bistoury or a furuncle knife *through the meatus*. Occasionally there may be a doubt as to whether a fluctuating post-auricular swelling is a meatal abscess, suppurating glands, or a subperiosteal abscess from a mastoid. Then it may be necessary to open for diagnostic purposes behind the auricle to see whether the collection is merely in the superficial tissues or whether bone has been bared.

In all staphylococcal infections specific treatment should be tried at the same time as local measures. Collosol manganese intramuscularly or by mouth, stannous oxide by mouth, yeast, etc., are all successful in some cases, none in all. In recurrent cases vaccines, either stock or autogenous, should certainly be tried, but in my experience they are of no use unless the dose is carried much higher than usually recommended—up to 2,000 or 5,000 millions of the ordinary vaccine, for example.

Acute Diffuse Otitis Externa

This may be staphylococcal, but it is more commonly streptococcal. It is characterized by uniform swelling of all the walls and great narrowing of the meatus. It may not be possible to insert a wick, but glycerin and carbolic (2½ per cent.) drops can usually be instilled, and heat should be applied. If a haemolytic streptococcus is the causative organism, prontosil or its derivatives should be given.

Erysipelas

This has the characteristic raised edge at the margin of the inflamed area, but may be missed unless the patient is examined in a good light, preferably daylight. The danger is that the exquisite tenderness may lead to its being mistaken for an acute mastoiditis. Until quite recently it was a safe bet that if you had the infection over one ear it was certain to reach the other, and it might travel the circumference of the head anything up to three times before dying out, no treatment, local or general, being of avail. Prontosil has definitely changed all this. Probably the best local application is calamine lotion. The infection very often starts from a fissure; this should always be looked for, and should be dealt with after the acute infection has subsided.

Acute Haemorrhagic Otitis Externa

This fortunately is rare, but it is sometimes seen in epidemics of influenza. The walls of the meatus and outer surface of the drumhead are covered with haemorrhagic blebs, and the differentiation from acute otitis media may be difficult. Cocaine and adrenaline pledgets will often help to determine the outlines of the drum, and mobility of the latter on self-inflation is against middle-ear infection. Treatment is by glycerin and carbolic drops, dry heat, and prontosil.

Perichondritis

This usually arises as a result of exposure and infection of the cartilage of the pinna or meatus by operation or injury. It is a serious complication, as the cartilage offers no resistance and the resulting deformity may be severe. Abscesses must be opened and drained, but precipitate surgery is best avoided. It is unwise to incise haematomata owing to the risk of this complication. A "cauliflower ear" is usually a better sight than the results of perichondritis.

S. Miglioli (*Ann. Ist. Carlo Forlanini*, November, 1937, p. 60) states that injection of alcohol into the intercostal nerves in thoracic herpes zoster was suggested by E. Morelli in 1926, but was not carried out until 1936 by Buttafari and Cerulli. Miglioli reports the case of a girl, aged 17, under treatment for pulmonary tuberculosis by bilateral artificial pneumothorax, who developed herpes zoster over the area corresponding to the sixth to the eighth ribs on the left side accompanied by considerable pain. After injection of alcohol into the intercostal nerves for four days the pain completely disappeared.

VULVO-VAGINITIS IN CHILDREN

CLINICAL AND ADMINISTRATIVE ASPECTS

The following abridged account of vulvo-vaginitis in children is extracted from a report drawn up by a Departmental Committee appointed by Sir Frederick Menzies, Medical Officer of Health to the County of London, to investigate the clinical aspects of the morbid conditions included under the designation vulvo-vaginitis and to consider the means necessary to prevent the spread of the disease in hospitals, nurseries, and schools in which children may be resident. The full text of the article has been issued for publication under the authority of the Hospitals and Medical Services Committee of the London County Council. The members of the Departmental Committee, who are its joint authors, are:

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Lieutenant-Colonel E. T. BURKE, D.S.O., M.B., Ch.B., Director, Whitechapel Clinic; Consultant Venereologist.

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The term "vulvo-vaginitis" includes a variety of conditions varying greatly in their clinical manifestation, in the causal organism, in infectivity, and in the readiness with which they yield to treatment. Characteristically, a vaginal discharge is found and may be profuse, but frequently only a soreness and irritation of the vulva are present. The vulva and introitus are found to be reddened and possibly oedematous. There may be enlargement of the inguinal glands. Frequency of micturition is of common occurrence; abdominal pain is not common.

The condition may develop as a complication of a general infection (for example, chicken-pox or pneumonia), and there may be septic foci elsewhere in the body. A history of masturbation is not uncommon.

CLASSIFICATION

The best classification of vulvo-vaginitis for practical purposes is considered to be (A) gonococcal and (B) non-gonococcal. It is true that some serious cases of infection by the streptococcus or other organisms may be as intractable and as difficult to treat as those due to the gonococcus, but "gonococcal vulvo-vaginitis" stands out as a recognized clinical entity and presents peculiar problems of its own.

The London County Council has had a wide opportunity for gauging the relative frequency of the two varieties of vulvo-vaginitis, as it has for over two years maintained a very careful watch for the occurrence of this disease among the many thousands of children, sick and healthy, under its care. The results for that period may be summarized as follows:

Hospital or School	Cases of Vulvo-vaginitis	Gonococcal Cases
30 general hospitals	529	19
20 special hospitals (including children's, tuberculosis, and fevers)	34	13
20 residential schools and homes ..	50	—
15 nurseries for healthy infants ..	14	—
	627	32

At the Hospital for Sick Children Dr. Nabarro divided a series of 1,219 cases into 249 gonococcal, 949 definitely non-gonococcal, and 21 doubtful. From out-patients only, the following figures were obtained:

	Total	Positive	Negative
1930	134	14	120
1931	128	12	116
1932	138	19	119
1933	125	10	115
1934	131	21	110
1935	146	17	129
1936	153	24	129
	955	117	838

It is obvious that these series were to a certain extent selected. The Council's proportion of positives was too low, because known gonococcal cases would be diverted at once to St. Margaret's Hospital and would never enter a general hospital. The Great Ormond Street figures are too high, as the hospital has a V.D. clinic to which known cases are naturally sent. This is proved by an analysis of the "gonococcal" cases for 1937. Out of 16 positive cases 9 came from other hospitals, 3 from child welfare centres, 4 from casualty department or out-patients. The fact emerges, however, that vulvo-vaginitis is only in a small minority of cases gonococcal, a point which is perhaps not widely appreciated.

The classification between gonococcal and non-gonococcal is necessary for administrative and clinical purposes, and in order to form a clear picture of the disease "vulvo-vaginitis," but it may be pointed out that no useful purpose is served by emphasizing it to the lay public, especially to parents. Vulvo-vaginitis in children is only very rarely a "venereal disease." The gonorrhoeal infections of children are in the vast majority of cases non-sexual in origin, and it is really an accident whether the causal organism of vulvo-vaginitis is a gonococcus, a streptococcus, a *B. coli*, or any other.

GONOCOCCAL VULVO-VAGINITIS

This disease causes the gravest anxiety to all responsible for the health of children owing to its great infectivity, resistance to treatment, and the horror it excites in the public mind. Its incidence is very difficult to gauge, as it is, of course, not notifiable and there is every motive against publicity when outbreaks occur. The number of cases of gonococcal vulvo-vaginitis in children under the age of 14 coming under hospital or clinic treatment in London in 1936 may be estimated as follows:

St. Margaret's Hospital	32
Hospital for Sick Children, Great Ormond Street	24
London Lock Hospital	14
Children's Medical Home, Waddon	44
V.D. clinics under Public Health Scheme	34
	148

This list inevitably excludes cases treated in private, but it does include an unknown number from the Home Counties.

Mode of Infection

Infection with the gonococcus in female children is usually accidental and is a result of contamination of the vulva with such infected fomites as towel, sponge, bed linen, or lavatory seat. The high incidence of infection in the parents of these children points strongly to this mode of transmission, especially in poorer homes where accommodation is inadequate. This fact emphasizes the need to make every effort, through venereal clinics and other suitable channels, to impress adult sufferers from gonorrhoea with the necessity for protecting from infection any children with whom they come in contact. The contacts of known cases of gonorrhoeal vulvo-vaginitis (for example, parents and sisters) should always be examined to exclude infection.

Direct infection by assault does occur, but it is not a common cause in this country. In institutions the infection may be spread by bed-pans, bed-pan covers, lavatory seats, towels, flannels or sponges, nurses' aprons, clinical thermometers (if rectal temperatures are taken), or enema nozzles; hence rigid precautions must be taken.

The vulva of a child is relatively unprotected until the labia majora develop and so is more exposed to these indirect modes of infection than in the adult. The mucous membrane too is thin and less resistant to infection. After the first few weeks of life the vaginal secretion is scanty and alkaline. With the approach of puberty the secretion increases and becomes strongly acid and bactericidal, and Döderlein's bacillus is found in large numbers in normal smears. This acid reaction probably explains the lower incidence of infection in young babies and girls over 10 years of age.

The inflammation and oedema of the urethral meatus and hymen are very typical of gonococcal infection. After careful swabbing of the vulva a probe passed into the urethra shows pus in the majority of cases. The pus spreading back over the perineum may cause a rectal infection. The anus is red and moist. There is sometimes mucus on the faeces. The first rectal test may be negative, but if the vaginal discharge does not clear the tests should be repeated at intervals, otherwise an infection may be missed and then re-infection from the rectum may occur later.

The exact limits of the incubation period are difficult to determine. In the great majority of cases it is three to four days, but may in rare instances be longer.

Symptoms and Clinical Signs

There may be a complaint of vaginal discharge with burning or irritation of the vulva in young children, discomfort on walking, or frequency of and pain on micturition. The lack of symptoms is often surprising, particularly in older children, and the mother brings the child to the doctor because the discharge in found on the clothing.

In a chronic case there is a slight inflammation of the vulva and vagina with usually a scanty discharge, which may be thin, purulent, or muco-purulent. The mucous membrane of the vulva is injected, particularly in the deep clefts between hymen and labia minora and just within the urethral meatus. The hymen is frequently torn and stretched. The cervix should be examined in these cases.

In an acute case the diagnosis can readily be made on clinical signs alone. The vulva is hyperaemic or acutely inflamed, and bathed in pus which oozes from the vagina with any expulsive effort on the part of the child. The pus may be thick or thin, yellow or greenish. It is rarely blood-stained and never so offensive as in the case with foreign bodies in the vagina. In neglected cases there is excoriation of the labia majora, groins, and inner surfaces of thighs, with adherent crusts of dried pus.

The closest co-operation between the clinician and the bacteriologist is necessary, especially in doubtful cases. At the same time, too, exclusive dependence on bacteriological findings is to be deprecated. In acute cases the clinical appearances of gonorrhoea should leave little doubt as to the diagnosis.

Collection of Material for Bacteriological Diagnosis

The manner in which material for bacteriological examination is collected is of great importance. Many failures to make a correct diagnosis are due to the fact that bacteriologists are supplied with material taken by unsuitable methods or by unskilled workers. Swabs should be taken only by a clinician expert at the task and never delegated to a member of the nursing staff unless she has been specially instructed. No attempt should be made to work single-handed. At least one assistant is essential to hold the child still in the correct position.

The child is placed in the dorsal position with the knees drawn up and the thighs separated as far as possible without hurting the child, the external genitalia being exposed in a good light. Any superficial discharge is removed with wool and the labia separated with gloved thumb and forefinger of the left hand.

Two swabs are taken with wooden or wire applicators round which a thin layer of good quality sterilized cotton-wool is firmly wrapped. *The probe must be passed well into the vagina* and withdrawn with some discharge on it. The first swab is used to make a thin even smear on a clean glass slide; the film is allowed to dry in air and is then preferably "fixed" by being passed through a gas or spirit flame several times, after which it is wrapped in paper and placed in the special slide box supplied for the purpose. *Smears should never be packed while still moist.* The other swab is used for inoculation of the culture medium, which may be done at the bedside or the swab may be transported as quickly as possible to the nearest laboratory.

Smears and swabs for culture should be taken from these sites in proved gonococcal cases or in patients suspected of past or present gonococcal infection or where there is any other special indication. Swabs may be taken from the urethra in a manner similar to vaginal swabs. The child should not have passed urine within an hour, and preferably longer, of being examined. Swabs of rectal mucus or muco-pus should be examined where there is clinical evidence or suspicion of rectal infection.

Identification of Infecting Micro-organism

It is generally agreed that for primary diagnosis both smears and cultures should be examined wherever possible. This is particularly essential in the case of suspected gonococcal infections, since (*a*) Gram-negative diplococci other than the gonococcus are occasionally present in the vagina, and (*b*) a diagnosis of gonococcal infection on smear alone will not be accepted in any medico-legal proceedings. However, on finding typical Gram-negative diplococci in the smear of a purulent vaginal discharge a preliminary report should be sent (or telephoned) in some such form as this: "Gram-negative intracellular and/or extracellular diplococci morphologically resembling gonococci are present in smear." It is helpful if, on receipt of this preliminary report, the clinician sends a repeat smear and swab for examination at the laboratory. A further report is sent on the result of the cultural examinations.

Most workers seem agreed that the complement-fixation test is usually negative in the early stages of a gonococcal infection and that therefore it plays little part in the early diagnosis of vulvo-vaginitis in children. The evidence as to its value in the later stages of infection is still rather conflicting. It is certain, however, that the test should not be regarded as an alternative to careful examination of films and cultures from the mucous membranes, especially in the early stages of an inflammation. Definite cases of gonococcal vulvo-vaginitis may have a negative complement-fixation test throughout the attack.

Complications

Cervicitis is one of the common causes of recurrence, and it is possible that it is present in the majority of cases in the early stages. The cervix should not be examined as a routine but only in those cases which fail to clear up with the usual methods of treatment or which relapse after treatment ceases.

Ascending infection through the internal os causing an endometritis, salpingitis, or pelvic peritonitis occurs rarely. Although urethritis is so usual, cystitis is a very rare complication. Cases of gonococcal conjunctivitis and iritis are very uncommon. They have never occurred as a complication in the series of cases at the Children's Medical Home, Waddon. There have been four cases of purulent conjunctivitis, but gonococci have not been found.

When dealing with infants it should be remembered that vulvo-vaginitis may occur concurrently with gonococcal ophthalmia but not, as a rule, during the first few weeks of life, since at this period the vaginal epithelium is of the adult type and the secretion highly acid—conditions inimical to infection with the gonococcus. Later a vaginitis in a child with ophthalmia may be overlooked, as the eye condition is more serious and attention is focused on this. Ophthalmia as a secondary complication of gonococcal vulvo-vaginitis is a very rare occurrence.

General Treatment

General Nursing Instructions.—The careful nursing of all children collected in hospitals and institutions is of the highest importance in the prevention of vulvo-vaginitis. As regards the nursing of children affected with any form of vulvo-vaginitis the following measures are recommended: (*a*) Certificated nurses only shall be employed in the care of affected children until three negative swabs have been obtained in a period of not less than a week, and the condition is considered to be non-gonococcal on clinical grounds. Nurses employed in the care of affected children must not, while so employed, attend to unaffected children, but they may, with suitable precautions, attend to adult patients.* (*b*) Every affected child should have a separate bed-pan or chamber, unless provision is available for efficient sterilization of such utensils after use. (*c*) Special attention should be paid to the clothing of infected children. When the discharge is profuse a light pad of non-irritating material is advisable, so as to minimize friction. All infected clothing should be soaked in a suitable disinfectant before being sent to the laundry.

General Routine.—This should include all procedures likely to help in "building up" the resistance of the patient, and may in certain cases be the most important factor in arresting the infection. (*a*) In-patient treatment with rest in bed during the acute stage for one to three weeks (according to the severity of the case) is to be recommended and is essential to relieve the initial soreness of the vulva. (*b*) Balconies or gardens are recommended in which infants can lie and older children play for most of the day, after the initial period of resting in bed. It should be realized that excessive exercise may have a detrimental effect. (*c*) The provision (when possible) of some occupation for the children, such as organized games, singing, and elementary lessons, all help to prevent the dangers of "idle hands." A nursery governess is of the greatest assistance as she removes the children temporarily from the care of those in uniform and the association of hospital in the child's mind. (*d*) A balanced diet is to be desired; milk, fruit, and fresh vegetables are necessary, and an excess of carbohydrate is to be avoided. (*e*) Ultra-violet light for use during the winter and for specially debilitated children may be a useful adjunct. (*f*) Nurses responsible for the care of gonococcal vulvo-vaginitis cases should be specially trained.

Local Treatment

The following choice of methods is suggested. It is emphasized that no packing of the vagina should be carried out and that throughout only non-irritating solutions should be employed. The vulva should be swabbed with lotion and dusted with a drying powder as often as necessary to keep it free from pus and as dry as possible. If the discharge is profuse a sitz bath may be given as a preliminary to treatment to make the cleansing of the vulva easier.

Douching may be necessary to remove excessive vaginal discharge and may be employed as a routine method of local treatment. The following solutions may be used: protargol, 1/4 per cent.; tinct. iodi mitis, 1 drachm to 1 pint; dettol, 1/2 drachm to 1 pint; solution of chloramine-T, 1/2 per cent. (The two latter are useful in offensive cases.) A rubber catheter may be attached to a douche can or to a Higginson's syringe. Solutions (as above) may be used conveniently at 80° to 100° F. It is suggested that alternation of the solutions used is advisable every two weeks.

Swabbing.—Opinion differs as to the value of swabbing or painting the vagina. Some authorities recommend it as a routine treatment to be applied except when it causes pain or the child is very nervous. Others restrict its use to cases where other treatment has proved ineffective and to very small infants, while one authority considers other forms of treatment adequate and does not employ it at all. If carried out one of the following solutions should be used, applied to the vagina on dressed throat swabs or wooden applicators: 10 per cent. protargol in glycerin, 50 per cent. milton in glycerin, 5 per cent. mercurochrome in glycerin. Dressed Playfair's probes may be used for the purpose in older children.

Urethral Treatment.—Here again practice differs. Routine swabbing or painting with 5 per cent. protargol or 1 to 2 per cent. silver nitrate is recommended by some when the canal is involved unless contraindicated as above. Other authorities depend upon alternative forms of treatment.

Rectal Treatment.—Swabbing, if used at all, should be restricted to cases in which the rectum has been found to be infected with the gonococcus and carried out with the greatest care, but some authorities are not in favour of this form of local treatment of the rectum.

It is emphasized that probes should be carefully and evenly dressed and with the best quality cotton-wool.

Special Treatment

Vaccine Therapy.—A reliable stock gonococcal vaccine may be used, but the use of this form of therapy appears to be infrequent and some authorities are definitely opposed to it. It has been recommended in chronic cases where there have been relapses and in the rare cases of tenosynovitis or arthritis. It should never be given during the acute stage.

Oestrin.—Many observers have reported favourably on the use of oestrin. It can be given by mouth, by injection, or in the form of suppositories, the dosage being approximately five times as great by mouth as by injection. The oral method is probably to be preferred, as children do not object to it, and the daily insertion of a vaginal suppository is considered undesirable and a procedure to be avoided if possible. The daily dose is 3,000 to 6,000 units, according to the size of the child, and it may be given at one time, say every morning. The character of the discharge, macroscopic and microscopic, should be noted every day. The purulent gonococcal discharge soon gives place to one containing many squamous epithelial cells and Döderlein's bacillus but no gonococci. The duration of the treatment varies from a few weeks to a few months. If the urethra or rectum (which are not affected by the oestrin) is found to be infected treatment should be applied in the manner indicated above. Relapses may occur after or even during a course of oestrin and are then usually found to be due to a urethral or rectal infection; they usually clear up quickly with oestrin and the associated treatment of the urethra or rectum. It is important that the change in the character of the discharge mentioned above is brought about. Unpleasant effects, such as engorgement of the breasts, vaginal haemorrhage, and especially masturbation, have been ascribed to the use of oestrin by some observers. The great value of the drug is, however, firmly established in the view of many experienced clinicians.

Sulphanilamide and allied substances have been used in some cases with encouraging results, but it is too early at this stage to assess fully the value of this treatment. Attention is drawn to the very varying degree of efficiency in the preparations of both oestrin and sulphanilamide now on the market. If good results are to be obtained the selection of a reliable preparation is essential.

* In hospitals for infectious diseases "barrier nursing" of the case may be substituted at the discretion of the medical superintendent for removal from a children's ward.

Relapses

The tendency to bacteriological and clinical relapse is one of the features of this disease. It is important to recognize the fact that these relapses may sometimes be of very short duration and pus may be present only for a few hours. A test may be positive on one day, and when repeated the following day for confirmation a negative result may be obtained. There may be no clinical signs in these latent cases, but the gonococci may be found in apparently clear mucus.

Relapses may be due to reinfection from an insufficiently treated urethra, or from the cervix or rectum, but masturbation is a contributory factor. It is the persistence of this habit after treatment has ceased which makes a clinical diagnosis of cure very difficult in many cases. Reliance on the bacteriological reports is essential. The influence of bad hygienic conditions at home, of tight and dirty clothing, and of masturbation in prolonging an unhealthy appearance of the genital parts should not be forgotten. From 11 or even 10 years onwards the physiological changes of puberty may be responsible for intermittent congestion of the parts, moisture, and mild leucorrhoea. None of these conditions should be mistaken for a genuine relapse. It is impossible to arrive at a correct diagnosis in such cases without the help of an experienced bacteriologist. Films and cultures (the latter being the more important in chronic or latent cases) must be taken.

It is of importance to remember the importance of *cross-infection and reinfection* when considering apparent relapses. Very great care is required to prevent convalescent cases of vulvo-vaginitis in a hospital being reinfected by children still in the acute stage. It may also happen that a child discharged from hospital may be reinfected in her own home (perhaps by the original source of infection), and then brought back to hospital with a complaint that she has relapsed.

The intractable character of gonorrhoeal vulvo-vaginitis is shown by the long period of treatment and observation required—for example, up to two years even when the case is in skilled hands from the beginning.

Criteria of Cure

Of all the vexed questions associated with vulvo-vaginitis none has given rise to greater controversy than "When is the child cured?" The marked tendency to bacteriological and clinical relapse, the uncertainty of finding the gonococcus in chronic discharges, and the obvious difficulty of proving a negative lead to the necessity for extreme caution in giving a certificate of cure. The query cannot, however, be evaded. Anxious parents must be reassured, schools must be advised when they can safely readmit pupils, and hospitals want to know when they may finally discharge patients.

The problem is peculiarly difficult of solution because the clinician is not only required to determine whether a child patient is, at any particular moment, free from infection, but also when the liability to relapse has ceased. As against an excessively pessimistic attitude it is pointed out: (1) that there is no direct evidence of gonococcal infection contracted in childhood lasting into adult life. Large numbers of patients who have suffered from gonococcal vulvo-vaginitis have now been followed up for many years, and no such case is known. Moreover, the previous history of thousands of adult patients who have attended the V.D. clinics during the past twenty years has been recorded with care, and no such tendency has been noted. (2) Exacerbations commonly occur in the early stages after treatment has ceased, although rarely after three months.

Criteria of cure should be negative tests (films, cultures, and gonococcal complement fixation) for a minimum of four months after cessation of all treatment. During this time the patient should be under observation at frequent intervals.

Daily inspection of the vulva is advisable for the first three months after suspension of treatment, in view of the very short duration of some relapses. (This can be done quite adequately by an intelligent mother after the first few weeks.) Normally the vulva clears up completely after treatment, but in a few cases there may sometimes be a persistent redness and slight discharge which is not pathological.

After treatment has been discontinued a full set of films and cultures should be made from vagina, urethra, and rectum (if considered advisable). For a minimum of four months vaginal and urethral swabs should be taken at weekly intervals for the first three weeks, and subsequently at intervals of two or three weeks. Tests from the rectum need not be repeated as a routine unless it has been infected. The final set of swabs and cultures should be taken after a provocative dose of vaccine administered twenty-four hours previously.

The place of the complement-fixation test among the criteria for cure of gonococcal vulvo-vaginitis is still undecided. When performed in a laboratory where such tests are being done weekly on a considerable scale and under well-controlled conditions—the L.C.C. laboratories come into this category—the test has been helpful. When both the bacteriological and serological tests are negative cure may be assumed. When the bacteriological test is negative but the complement-fixation test remains positive for more than six weeks persistence of some hidden focus of infection may be suspected. Such persistently positive tests are rare. Change to a negative reaction is sometimes accompanied or followed by a recurrence of the vaginal discharge.

When a period of six months has elapsed after cessation of treatment without obtaining a "positive" result (bacteriological or serological), or definite clinical evidence of vulvo-vaginitis, there can, in the opinion of the writers, be no object in continuing observation of the patient. Such continuous observation will tend to perpetuate anxiety in those responsible for the child, to keep up bad habits if they exist, and to fix in the memory an unfortunate experience.

NON-GONOCOCCAL VULVO-VAGINITIS

This condition is not uncommon in girls between the ages of 2 and 7. It becomes relatively infrequent after that age, and appears to be very rare after the age of 10. The conditions which may give rise to vulvo-vaginitis, or are found in association with it, are of a very diverse character. They are as follows.

General Causes

It may develop as a prodromal symptom of the exanthemata—for example, of chicken-pox and measles—or as a sequela, for example, of scarlet fever. It may occur during the course of general acute infections, particularly pneumonia; and has also been observed in attacks of influenza and possibly in ordinary coryza.

It occasionally occurs in the course of general debilitating diseases, and has been observed in the anaemias.

It may be secondary to acute throat infections, most commonly streptococcal; it also occurs in association with cases of diphtheria and of Vincent's angina.

Local Causes

Foreign bodies—safety pins, marbles, gauze swabs, etc.—in the vagina.

Direct infection from fingers of mother, nurse, etc., and by towels and clothing or by direct contact with dirt (as in children with inadequate clothing).

Secondary to irritation, congestion, or inflammation in adjacent organs—for example, in association with threadworms, chronic constipation, appendicitis (acute or chronic), and infection of the renal tract.

Direct irritation of the parts by tight clothing or masturbation causes a local hyperaemia and predisposes to invasion of organisms. The tendency has also been noted in neglected children and in those especially difficult to keep clean—for example, spastic cases.

Clinical Signs

A differential diagnosis between the various types of vulvo-vaginitis cannot be made without bacteriological tests, but certain clinical signs are highly suggestive of certain causes. In "diphtheroid infections," for example, redness of the vulva is present, and discharge, if present, is scanty. Discharge due to the presence of foreign bodies is characteristically blood-

stained and offensive. Staphylococci usually produce a thick creamy discharge, whilst that caused by the streptococcus is thinner and colourless. *B. coli* may give rise to an offensive discharge with a characteristic odour. The vaginal discharges which occur occasionally at the onset of a general infection may simulate any of these characteristics.

Bacteriological Diagnosis

The same precautions should be adopted in collecting material as in cases of gonococcal vulvo-vaginitis.

A large variety of organisms have been found in smears or cultures from vaginal discharge, either singly or in combination. The relative frequency of the infecting organisms will very probably vary according to the centre at which a series of cases is studied. For example, among seventy-one cases examined at the Hospital for Sick Children, Great Ormond Street, by Dr. Wood, non-haemolytic streptococci (mostly enterococcus) were recovered from fifty-one, *B. coli* and a typical coliform bacillus from thirty-six, anaerobic Gram-positive cocci, *S. albus*, and diphtheroids from a quarter to half the cases, while the haemolytic streptococcus was isolated from ten and *S. aureus* from only two patients.

In fever hospitals the most frequent causal organism is the haemolytic streptococcus, most of the infections developing as complications of scarlet fever or tonsillitis. Rarely, *C. diphtheriae* produces a true diphtheria of the vagina, although virulent strains may be present in the vagina without producing diphtheritic infection. Other organisms, like the pneumococcus, *H. influenzae*, Gram-negative cocci other than the gonococcus, and the tubercle bacillus, seem occasionally to be responsible for vulvo-vaginitis. *Trichomonas vaginalis* does not apparently produce infection in the child.

While organisms like the haemolytic streptococcus, *S. aureus*, and possibly *B. coli*, which are known or potential pathogens, do frequently initiate infection in a healthy vagina, it is unlikely that saprophytic organisms like the enterococcus and diphtheroids do so, and their predominance on culture may mean that they have supplanted or masked the original infecting organism. They may, however, perpetuate an infection arising from other causes.

An important point to which attention should be drawn is the very low infectivity of non-gonococcal vulvo-vaginitis. Familial spread is occasionally reported, but epidemics of vulvo-vaginitis in schools and hospitals, or indeed the infection of any one child by another, appears to be very uncommon. The presence of a focus of sepsis (especially of the haemolytic streptococcus) obviously makes any child an undesirable occupant of a ward or dormitory, but there is apparently little danger of the spread of vulvo-vaginitis as such.

Treatment

The treatment of the non-gonococcal forms of vulvo-vaginitis calls for considerable judgment. Many of these cases are of a very mild character, and require little or no treatment except baths and local cleanliness and removal of any causal factor. Indeed, the great danger is over-treatment, for prolonged swabbing and douching may not only keep up a vaginitis but actually increase it. Prolonged confinement to bed is very harmful; it lowers the general health and leads to masturbation.

The more severe infections should be treated on the same lines as the gonococcal cases, including oestrin therapy; there are all grades between these severe cases and the patients with slight persistent discharge. Treatment varies, therefore, from simple bathing to the complete regime of the gonococcal case.

In a very small number of children the discharge proves extremely persistent, and may fail to clear in twelve months or more. Suggestions are made for handling troublesome infections.

Criteria of Cure

The great majority of cases clear completely after two to three weeks' treatment, but it is advisable to keep observation on the child for two or three weeks after the discharge has ceased, as recurrences are not unknown. In haemolytic streptococcal infections the tendency to relapse may last for a considerable length of time.

In view of the alarm caused by any vaginal discharge, children allowed to return to a residential school or institution should be examined at weekly or fortnightly intervals for two months after their return.

ADMINISTRATIVE ASPECTS

This aspect of the problem is of great importance, as any authority or organization undertaking the care of children, sick or healthy, is faced with two serious obligations: (*a*) to protect non-infected children from the possibility of infection with the disease, and (*b*) to detect, isolate, and treat any case of vulvo-vaginitis occurring in a child for whom it is responsible. The administrative measures found necessary to ensure these ends will vary greatly with local conditions, and also as between children who are sick and those who are healthy.

For the protection of sick children the writers have suggested certain instructions, which have, with slight variations, been in operation in the London County Council's hospitals for over two years. During this time no spread of the disease has occurred, and it is felt that the precautions are adequate. The plan of swabbing all female children on admission to hospital was considered and rejected, on the grounds (*a*) that the Council had such a large number of child patients that the procedure would be burdensome, (*b*) that gonococcal infection is now shown to be extremely infrequent, and (*c*) that it gives no real security and would in no way obviate the necessity for other precautions.

As regards healthy children in the Council's residential schools and receiving homes, the staffs are asked to maintain a careful look-out for any sign or symptom of the disease. The children's underclothing and bed-linen are watched for evidence of discharge, and any child considered suspicious is at once isolated and swabbed.

At residential establishments for healthy children the problem of isolation of a suspicious case presents greater difficulty than in a hospital. Many institutions have little or no provision for the accommodation of potentially dangerous material, and the staff are naturally anxious to transfer any "suspicious" child as soon as possible. It has been found, however, that if too free encouragement is given for the transfer of girls to hospital, children may be sent into hospitals quite unnecessarily for conditions which are mere physiological incidents in development, or for transient and quite unimportant redness of the parts. The handling and examination involved in taking a series of tests from any little girl must, of course, be undertaken without hesitation, if necessary, for the benefit of the child or her companions, but it is not a light matter for obvious reasons. Experience has also shown that once a diagnosis of vulvo-vaginitis has been made, even on the most slender grounds, the child is marked out and her record is regarded with suspicion. Hence it is very desirable that residential establishments should be certain that there is some definite evidence of vulvo-vaginitis before transferring a child to hospital for this condition. If, however, definite clinical evidence of vulvo-vaginitis is present, an institution should not be expected to keep a child until bacteriological tests have been made, and in no case should they be asked to keep a child who needs treatment.

It is the practice of the London County Council to concentrate in St. Margaret's Hospital all cases of vulvo-vaginitis in which a report of the presence of "organisms morphologically resembling the gonococcus" has been received. Further investigations to confirm the diagnosis are continued after admission, but in the meantime all possibility of spread to non-infected children has been obviated.

The article ends with a full summary, and there are three detailed appendices: (I) The vagina in childhood, by Dr. R. Cruickshank; (II) Laboratory methods recommended for use in the identification of the infecting micro-organism; (III) Suggested instructions to staffs of hospitals and institutions.

TUBERCULOSIS ASSOCIATION

MEETING AT OXFORD

The annual provincial meeting of the Tuberculosis Association was held this month at Oxford under the presidency of Dr. S. ROODHOUSE GLOYNE.

Tuberculin Testing

On the first day Dr. J. HEIMBECK (Oslo), opening a discussion on the incidence of tuberculosis in young adults, said that in a survey he had conducted in Oslo he had found that at the age of 20 half the people were still tuberculin-negative. Among the nurses at the Ullevaal Hospital in Oslo all the probationers who were tuberculin-negative at the beginning of their training became positive before completing the three-year period. Among 284 nurses tuberculin-negative on entrance 104 developed tuberculosis, which proved fatal in thirteen. Among 668 tuberculin-positive entrants only thirty-four developed tuberculosis, and none died.

Dr. H. H. BASHFORD (London) related his experience among the Post Office staff. The heaviest incidence of tuberculosis was found in the age group 20 to 30. Of all new cases of tuberculosis only half were ever able to return to work, and of these only a little more than half were working after a period of ten years. Dr. C. J. C. FAILL (Bristol) suggested that "summer time" tended to cause young people to play games until late at night, and therefore to make them unduly tired, lowering their resistance to tuberculosis. Dr. PETER EDWARDS (Market Drayton) gave figures of tuberculin testing in the nursing and domestic staff at his sanatorium: though small in number, they appeared to support those of Dr. Heimbeck.

Extrapleural Pneumothorax

On April 8 a discussion on extrapleural pneumothorax was opened by Mr. R. C. BROCK (London). He had attempted this operation in fifty patients. In six the operation was abandoned owing to the presence of dense mediastinal adhesions; five had died; in the remainder a good collapse had been obtained. More experience was required in the selection of cases. He advocated extensive stripping of the parietal pleura, and then described a procedure he had introduced in which an extrapleural pneumothorax was joined to a lower intrapleural artificial pneumothorax by cautery division of the septum between them. Mr. T. H. SELLORS (London) had also operated on fifty patients; two had died. In four patients tuberculosis developed in the opposite lung. He had also practised the procedure introduced by Mr. Brock. When there were massive intrapleural adhesions he excised the area of the parietal pleura to which the adhesions were attached. He considered bleeding the chief complication. Mr. TUDOR EDWARDS (London) had performed the extrapleural operation and division of the septum at the same time on fifteen occasions; he considered the results satisfactory. The post-operative management was discussed also by subsequent speakers. The second intercostal space anteriorly was recommended as the best approach for removal of the fluid which often forms in the extrapleural space. Dr. L. E. HOUGHTON (Hendon) said that he was against too much stripping of the parietal pleura.

Radiological Investigations

On April 9 the paper on progress in radiology, by Dr. FELIX FLEISCHNER (Vienna), who was unable to be present, was read by Dr. England. It was concerned mainly with Dr. Fleischner's original work on atelectasis, and was illustrated with numerous beautiful skiagrams. He maintained that when a bronchus was blocked shrinkage of the lung distal to the block did not always occur, because other forces might keep it expanded. When this happened a transudate, which filled the alveoli, developed after the air had become absorbed. There might be partial shrinkage together with an exudate. In these cases the radiological shadow could be indistinguishable from that of a pneumonic process. Epituberculosis was a typical example of this condition.

Professor A. E. BARCLAY and Dr. K. J. FRANKLIN (Oxford) gave the results of their recent investigations into the physiology of the lung. The work was done with a radio-opaque dust (so that cineradiograms could be taken) in cats. The cilia of the trachea and bronchi carried foreign bodies to the larynx spirally in a clockwise direction, when viewed from above, at a speed of from 1/2 to 3 cm. a minute. Indian ink injected subpleurally was carried to the larynx in fourteen minutes. Dry dust or finely powdered lead glass when insufflated into the lungs never reached the alveoli; it was quickly eliminated from the tracheo-bronchial tree by the cilia. When moist, however, it rapidly lined the alveoli and did not disappear before many days.

HEALTH OF THE ARMY IN 1936

Although the health of the soldier was satisfactory in 1936, there was an all-round increase in sickness incidence over that in 1935 and the preceding quinquennium; this is attributed in the latest Report on the Health of the Army[1] to abnormal conditions of service, more particularly in Palestine and Egypt. The admission rate showed an increase of 35.6 per 1,000 over that for 1935. In Egypt and Palestine combined there was an increase of 158.9 per 1,000, and in China 152 over that for the previous year. The diseases in the first two countries responsible for this large increase were sand-fly fever (27), diseases of the skin (18), tonsillar inflammations (15.3), and influenza (13.6), while "other diseases of the digestive system" (excluding tonsillitis, pharyngitis, gastritis, gastric ulcer, duodenal ulcer, and diseases of the liver) accounted for an increase of 28.7. Most of the sand-fly fever occurred in Palestine, while in China influenza (48.9), venereal diseases (47.9), and malaria (28.5) accounted for more than 80 per cent. of the increase. There were decreases in rheumatic fever and inflammation of the kidney, offset by increases in hysteria, middle-ear inflammation, pulmonary tuberculosis, epilepsy, valvular disease of the heart, effects of old injury, schizophrenia, duodenal ulcer, and flat-foot.

Enteric Infections

In India the admission rate on account of the enteric group of fevers was the lowest yet recorded, this reduction having been effected in spite of an increased incidence of enteric infections in the civilian population. The notable improvement is partly ascribed to greater interest taken in child and family welfare by all Indian units, with the result that many hidden patients suffering from one of these fevers are now being efficiently treated, thus eliminating an important source of infection. Moreover, since the reduction of this incidence is very similar in both Egypt and India, it would seem that the improvement is partly due to introduction of the new T.A.B. vaccine supplied for preventive inoculation by the Royal Army Medical College and the Central Research Institute, Kasauli. In India also the number of admissions for dysentery in 1936 was less by 253 than in the previous year, but in Egypt and Palestine there was an increase of 260, partly due to a larger number of troops living for the most part under active service conditions. There were two waves in the incidence in Egypt, one in April and the other in November, which were consequent on and ran parallel with the periods of greatest fly prevalence. The dysentery reported from stations at home was without exception a recurrence of an infection contracted abroad. Reports show that the saline treatment of bacillary dysentery, combined with the use of serum where necessary, is universally satisfactory. In Egypt a few cases were treated with bacteriophage with good results, but the number treated was too small to permit any useful comparison. Compared with 1935 the clinical group was reduced by 111, which indicates an improved liaison between

[1] H.M. Stationery Office. 3s., postage extra.

the hospitals and the laboratories, but it is remarked that in certain stations abroad the laboratory is situated at a considerable distance from the hospital, and that it is this long distance factor which tends to prevent the isolation of the causative organism from the stools. There were only two admissions for amoebic abscess of the liver, both of which responded well to emetine treatment.

Malaria

In India an increased incidence of malaria was reported in the Northern Command and the Burma District, with general decreases elsewhere, though the climatic conditions favoured the spread of this disease. Its increase in the Northern Command was an aftermath of the Mohmand operations of 1935. During these operations "delay action" quinine was given to the men in camps which were notoriously malarious. While this had the effect of keeping the men at duty, it reacted by producing a larger number of relapse cases and latent fresh infections during the following spring. In addition, the breeding season of the Rawalpindi District extended into late November, with many admissions during that month. Multan is now the most malarious district, its admission rate in 1936 being 176 per 1,000; the reason for this is held to be the changed climatic conditions, increases in humidity and rainfall having become apparent in the areas affected by the new irrigation from the River Indus. Malaria in Delhi was further reduced from 87.5 per 1,000 in 1935 to 71.6 per 1,000 in 1936, in consequence of intensive anti-malarial measures in both civil and military areas in the city. The relapse rate for all India during 1936 was almost half that for 1932, but in the Northern and Western Commands the relapse rate was much higher than in 1935.

Research Investigations

The situation in Egypt and Palestine in 1936 afforded an opportunity of observing to some extent the protective value of the recently modified typhoid vaccine. Since the strength of troops in these Commands had been almost doubled, an increased incidence of typhoid fever was expected. Not only did this not occur, however, but the case rate for the enteric group of infections was only 0.4 per 1,000, compared with 1.7 in 1931. On the other hand, the incidence of these infections among the civil populations in Egypt showed a gradual increase, due most probably to improved methods of diagnosis. The year 1936 was considered a bad year for civilians. It would therefore seem that the incidence of these diseases in the Army was favourably affected by the introduction of the recently modified vaccine. The Army Pathology Advisory Committee met in June, 1936, when the arrangements for the pathology services of the Army were reviewed and consideration was given to the provision of tetanus antitoxin, leptospirosis in the Army in England, the laboratory diagnosis of glandular fever, and the investigation of an influenza epidemic in the Eastern Command. Co-operation with the workers of the Medical Research Council continued, including an important trial of the new mouse virus vaccine, a study of the mannitol group of dysentery organisms, and of water purification in the field. Sodium mandelate with ammonium chloride in the treatment of urinary infections due to *B. coli* gave very satisfactory results on clinical trial. Evipan sodium gave satisfaction as the anaesthetic for ear, nose, and throat surgery, except in enucleation of the tonsils, some cases of which showed a tendency to haemorrhage. Specially prepared ascorbic acid tablets were analysed and found to be adequate for the prevention and cure of scurvy.

Medical Examination of Recruits

In consequence of a falling off in the number of recruits during recent years, a War Office committee assembled in May, 1936, to inquire generally into the causes of rejection of prospective recruits, to examine the then existing physical standards, and consider the possibility of taking into the Army men below the agreed standards who in the opinion of the medical authorities might reach those standards after a period of special training. The committee agreed that the standards of general health and physique should not be modified, but that the introduction of mechanization and the increase of specialization would permit of an adaptation of certain standards to conform with these conditions. Accordingly the Army was classified for recruiting purposes as (1) the horse and foot class, (2) mechanized class, (3) M.T. class, and (4) L. of C. class. A medical subcommittee then drew up modified physical standards to accord with this classification, and it is calculated that when they came into operation on December 1, 1936, there was a saving of 216 recruits, 12.4 per cent. of the total in the remaining month of that year. A preliminary experiment limited to men below the standards of weight and/or chest measurement and those suffering from functional defects of the heart was undertaken at the Army School of Physical Training, Aldershot, during the last three months of 1936. Of the thirty-three men enlisted, twenty-four attained the necessary standard and were drafted for duty in depots, seven who only just failed to reach them were similarly drafted, and only two were finally rejected. A special centre was subsequently established for the "reconditioning" of recruits of this type. A proposal was also put forward for the admission of recruits who were up to standard and fit in all respects except for some curable defect such as varicose veins or enlarged tonsils, and to admit them to hospital at once for treatment; this was approved.

Nova et Vetera

THE EARLIEST ENGLISH PRINTED MEDICAL TREATISE, AND OTHERS

Hard upon the dispersal of the medical books belonging to Sion College[1] comes the announcement of the sale at Sotheby's on May 30 and 31 of an older and choicer, though smaller, collection, the historic and superb library from Ham House, Surrey. In passing it may be mentioned that the gem of the Sion books, Harvey's *De Motu Sanguinis* (first edition), turned out to be in somewhat deteriorated condition, and so fetched only £238, probably less than half of what a good copy would have realized. The Ham House library was formed mainly by the first Earl of Lauderdale; his son, the first Duke of Lauderdale; the latter's stepson, the third Earl of Dysart; and, chiefly, by the fourth Earl of Dysart, who, although unpopular with some of his contemporaries, had a very distinguished taste in fine and beautiful books. The presence of twelve Caxtons is enough to make the mouth of every collector water, to say nothing of several of the products of Wynkyn de Worde and Pynson, many of them of the greatest rarity.

The few medical books are of the highest interest, and in one or two cases have as well great "association" value. Particularly is this true of the first edition in French of the *Ortus Sanitatis*, printed on vellum in Paris in two volumes about 1500, and specially illuminated in gold and colours by Antoine Verard for Henry VII, with the latter's arms. The auctioneers have traced a payment in the royal account books for 1502 of £6 for "two bokes called the gardyn of helth"; but they state that Verard's price for a vellum copy such as this would be many times higher, and there is no evidence that it ever came into the King's possession, as throughout the seventeenth century it appears to have belonged to the Landgraves of Hesse; moreover, the paper copy bought in 1502 is now actually in the British Museum. It is profusely illustrated, mainly with woodcuts of plants; but there is one large picture of a human skeleton.

"The Governayle of Helthe"

The earliest medical work printed in the English language and the first medical work printed in England is the *Governayle of Helthe: Medicina Stomachi*, published in 1489 by William Caxton: only one other copy is known, and that is in the Bodleian Library. It is hard to

[1] *British Medical Journal*, April 9, 1938, p. 797.

imagine a more desirable acquisition for a medical library than this magnificent folio. Bartholomew Glanville's *De Proprietatibus Rerum*, Wynkyn de Worde, 1495, is the first book ever printed on paper made in England (at Hertford): this Ham House copy unfortunately lacks five leaves. The first quarto edition of Sir Thomas Elyot's *Castel of Helth*, Berthelet, 1541, is bound in with Thomas Paynel's translation of the *Regimen Sanitatis Salerni* (same publisher and year), and with the first quarto edition of a book whose full title is *Of the Wood called Guaiacum, that healeth the frenche pockes, and also helpeth the goute in the feet, the stone, palsey, lepre, dropsy, fallynge euyll, and other diseses*, made in latyn by Ulrich Hutten Knyght, and translated into englysh by Thomas Paynel, Berthelet, 1540. Elyot's book first appeared in 1539 in octavo, and Hutten's, too, had been previously printed in that form. There is also a Latin copy of Hutton's work *De Guaiaci Medicina et Morbo Gallico*, printed at Mainz by Schoeffer in 1531. Bound up with three other non-medical works is Walter Cary's *Hammer for the Stone*, "so named for that it sheweth the most excellent remedie that ever was knowen for the same," John Windet, 1586. A curiosity is the translation into English verse of Christopher Balista's *Overthrow of the Gout*, written originally in Latin verse! The translation is by B. G., thought to be possibly Barnaby Googe; it is dedicated to Richard Master, physician to Queen Elizabeth, and was published by Abraham Veale in 1577.

Three Treatises Bound Together

Elizabeth Blackwell's *Herbal*, 1739, of which a copy is offered, is naturally overshadowed in importance by a volume which contains three medical treatises bound together: they are *The Grete Herball whiche geneth parfyt knowlege and understanding of all manner of herbes and there gracyous vertues . . . also . . . the noble experiens of the vertuous handwarke of Surgery*, Southwark, Peter Treveris, 1526; Jerome of Brunswick's *Vertuous boke of the distyllacyon of . . . all manner of herbes . . . newly translate out of Duyche into Englysshe*, Andrewe, 1527; and the same author's textbook of surgery, with woodcuts of surgical instruments, Southwark, 1525. The only remaining medical book is a French treatise by Charas, 1670, on vipers and remedies for their bites.

ANNALS OF MEDICAL HISTORY

Of the seven main articles of the second instalment of *Annals of Medical History* for this year,[1] three deal with medicine in Virginia and are continued and concluded from the previous number. The memoir of Hunter Holmes McGuire of Richmond, Virginia, shows the active part which he played in the North and South War and that he was primarily a great physician and incidentally a safe and conservative surgeon, thus illustrating Nicolas Senn's dictum that a good surgeon is a good physician who operates, and recalling a somewhat similar aphorism of the late Lord Moynihan. The article on Pioneer Medicine in Virginia contains an account of the tropical work of Walter Reed and of M. R. Carter on yellow fever. Dr. Joseph Krafka describes the Tory Doctors of Georgia under the Banishment Act of 1778. The other articles include a concise sketch of the part played by the Jewish physician in the progress of his people by Dr. H. A. Savitz of Boston; Miss Alice Willcox's collection of medical references in the dramas of John Lyly, who spoke of tobacco as "our holly hearbe Nicotian" and recommended its use in a salve "with cooling violets and honey" to heal a wound. F. T. Gardner and C. D. Lake of San Francisco reproduce with their comments the letter on the usefulness of oleaginous warm baths sent by Dr. Browne Langrish of Petersfield to the Royal Society in 1747.

[1] *Annals of Medical History*. New series, vol. x, No. 2, March, 1938. Edited by Francis R. Packard, M.D. (Pp. 107–196; illustrated. Subscription for year, 11 dollars; single number, 2.50 dollars.) New York: Paul B. Hoeber Inc. London: Book Department, Harper and Brothers. 1938.

Reports of Societies

PSYCHOLOGY AND GYNAECOLOGY

At a meeting of the Medical Society of Individual Psychology on April 7, with Dr. H. C. SQUIRES in the chair, Mr. ALECK BOURNE read a paper on psychological conditions underlying gynaecological symptoms.

Mr. Bourne said that one of the most important aspects of clinical medicine was the differentiation of organic diseases from those due to disturbed function. Undue emphasis in the teaching of students was placed on established and even terminal organic conditions, while the clinical states due to disturbed function were often neglected. Disturbed function of the pelvic organs, as in other parts of the body, might be due to a habit of life, to prolonged emotional stresses, or endocrine imbalance. Physical signs in adolescent girls, which were almost certainly due to over-stimulation by oestrin, included excessive non-infective leucorrhoea, highly acid vaginal secretions, a high content of epithelial glycogen, non-infective erosion, and a soft, easily dilatable internal os uteri. He had coined the word "oestrosis" to describe this syndrome. The question of interest to psychologists was whether the excessive oestrin production was primary or secondary to a mental state arising from sexual maladjustment.

PROGESTERONE THERAPY

A meeting of the Aberdeen Medico-Chirurgical Society was held on April 7, with the president, Dr. H. E. SMITH, in the chair, when Dr. SUSAN PATERSON (Edinburgh) gave an address on the therapeutic uses of progesterone.

Dr. Paterson outlined the current view of the hormonic control of the menstrual cycle and pregnancy, and concluded that the corpus luteum hormone, progesterone, was essential for the maintenance of pregnancy. Its functions were to prepare the endometrium for the embedding of the ovum, to inhibit normal uterine contractions and further ovulation, and to lessen the sensitivity of uterine muscle to pitocin. After dealing briefly with the method of standardization and the dosage, and emphasizing that corpus luteum preparations were inert when given by mouth, she described the gynaecological and obstetrical indications for their use. Under the former heading came certain functional uterine haemorrhages and certain cases of dysmenorrhoea. The former occurred much more frequently from an oestrin-stimulated type of endometrium than from a progestational endometrium, suggesting at once the use of progesterone. Pubescent haemorrhages in 80 per cent. of cases were non-ovular, and the bleeding might be dangerous; progesterone was eminently satisfactory in tiding the patient over the danger period, until normal ovulation occurs and the bleedings cease. Dr. Paterson described two personal cases, treated with complete success with 1 mg. daily until the bleeding stopped. In metropathia haemorrhagica treatment by a menopausal dose of radium, after diagnostic curettage, was advocated. Dysmenorrhoea due to forceful muscular contractions of a normally developed uterus, subject to uninhibited oestrin sensitivity to posterior pituitary, might logically be treated by corpus luteum. It was characterized clinically by uterine colic starting before the flow, and continuing through the first or first and second days of the flow, and also, usually, by a rather prolonged and profuse period. Two cases were treated by 2 mg. progesterone on the seventh, fifth, and third days preceding the period, with a good immediate result in each case, but it had not been possible to follow them up.

Obstetrical Uses of Progesterone

The obstetrical conditions in which corpus luteum had been used included sterility, threatened abortion, habitual abortion, after-pains, and pre-eclampsia. In sterility,

where curettage immediately before a period revealed an endometrium with slight progestational changes, but changes not proportional to the time in the cycle, treatment by progesterone might be tried, in the week of the cycle preceding menstruation, with the idea of making the endometrium suitable for nidation. In threatened abortion there was no doubt of the efficacy of progesterone. It acted probably in inhibiting contractions of the uterus, and if such contractions had proceeded far enough to cause some haemorrhage, comparatively large doses were required—Schering suggested 5 mg. on five consecutive days. There was little doubt that habitual abortion was due to lack of corpus luteum hormone, but that a deficiency of this hormone was due to a deficiency of vitamin E, as Young suggested, remained to be proved. Dr. Paterson had had five successful cases out of six, using 2 mg. weekly throughout the first four months, with increase to 5 mg. at the week of the suppressed menstrual periods, and with 5 mg. daily for three days if there were haemorrhage or downbearing pains. In sixty-five cases in the literature fifty-seven were successful—88 per cent. Although in the majority of patients after-pains could be rapidly relieved by injection of 1 mg. progesterone, the advisability of suppressing these pains was open to question.

Pre-eclamptic Toxaemia

Thirty cases of pre-eclampsia had been treated to date with progesterone, most of them being severe cases. Care was taken to exclude nephritis. Treatment was restricted essentially to the administration of progesterone, but the following basic precautions were taken: (1) a balanced diet of approximately 1,650 calories was given, not salt-free and not protein-free, but excluding red meat; (2) in all cases where oedema was marked fluid intake was restricted to less than 40 oz. until the fluid output was greater than the intake; (3) when headache was severe luminal was given. Progesterone was given intramuscularly in 5-mg. doses daily for the first three or four days, and thereafter, depending on response, at longer intervals. In certain cases where no response was noted after one day, 10 mg. were given on the second, third, and fourth days. All cases recovered, and only one mother developed fits after treatment had started, and that on the second day. The following table compares results in severe cases in the year before progesterone was used and in the following year, in which it was used.

	Conservative (31)	Progesterone (22)
Developing fits	10	1
Maternal mortality	3	0
Foetal mortality	10	7
Corrected foetal mortality	10 (32%)	3 (14%)

The theory underlying the use of corpus luteum hormone in pre-eclamptic toxaemia was suggested by Robson's experiments on rabbits, which seemed to prove that the health of the placenta depended on the health of the corpus luteum, and that toxaemia was the direct result of a placenta no longer healthy. Dr. Paterson said in conclusion that treatment by progesterone was a substitution therapy: it would not revivify areas of placenta damaged past repair, but it would help to maintain the health of the part of the placenta still functioning. Obviously the earlier the deficiency of corpus luteum was recognized and corrected the better would be the results, and in severe cases of pre-eclampsia conservative measures (rest in bed, attention to bowels, etc.) were necessary to deal with the toxins in circulation. If this theory was sound it followed that if patients with the earliest signs of pre-eclamptic toxaemia were treated with this form of therapy eclampsia could be practically eliminated as a dangerous complication of pregnancy.

Professor BAIRD expressed surprise at the high percentage of successes with progesterone in habitual abortion. With regard to pre-eclampsia, sixty-five cases had been treated without progesterone at Aberdeen Maternity Hospital in 1937, with no maternal deaths and eight foetal deaths. These results were as good as those achieved by progesterone. If progesterone were to be employed it would probably be most useful at the sixth month in cases with early rise of blood pressure and without albuminuria. Mr. GEORGE DAVIDSON, dealing with habitual abortion, questioned the theoretical basis of the principle of giving increased corpus luteum at the time of the suppressed menstrual period. Dr. PATERSON, in reply, stated that this was done not on theoretical grounds but because clinical experience showed that abortion was most likely to happen at the time of the second and third suppressed period.

SURGERY OF DUODENAL ULCER

At the March meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, with the president, Mr. A. A. MCCONNELL, in the chair, Mr. GARNETT WRIGHT (Manchester) read a paper on surgery and the duodenal ulcer.

Mr. Wright began by discussing the different phases through which the surgical treatment of duodenal ulcer had passed during the present century, mentioning finally the disrepute into which the operation of gastro-enterostomy for non-stenosing cases had fallen, and the recent tendency to replace this operation by partial gastrectomy. He then proceeded to review his own experience of 198 cases treated at the Salford Royal Infirmary; gastro-enterostomy had been carried out in 137. There were three deaths in this series—a mortality of about 2.2 per cent.—and ninety-four of the survivors had been traced. Of these about 80 per cent. were either quite well or much improved, but the incidence of secondary ulceration was rather high, occurring in nine cases altogether, of which four were proved at operation, while in the remaining five the presence of a secondary ulcer was surmised on account of either haemorrhage or radiological evidence. In a small series of cases treated medically the results were almost the same as in those cases submitted to gastro-enterostomy—namely, about 75 per cent. of successes. In spite of the high incidence of secondary ulcers Mr. Wright made a strong plea for the operation of gastro-enterostomy, since it gave such a high proportion of successful results with a comparatively low mortality and in a comparatively short period of time—an important point in the hospital patient. Gastrectomy, except in the hands of a few experts, was associated with a much higher mortality, and, furthermore, did not necessarily prevent the development of secondary ulcers.

Mr. Wright further stated that in his hands the after-results of such operations as pyloroplasty had not been nearly so satisfactory as those of gastro-enterostomy.

General Discussion

Mr. SETON PRINGLE said that of recent years he had advised purely medical treatment in uncomplicated cases. Surgery might be necessary in cases which did not yield to medical treatment, or for patients who could not for economic reasons follow the necessary regime; in such patients he did a gastro-enterostomy provided the gastric acidity was moderate; if the acidity was high he preferred a partial gastrectomy. In cases complicated by stenosis he believed that gastro-enterostomy was all that was required; cases of haematemesis he treated conservatively.

Professor HENRY MOORE said that about 75 per cent. of non-stenosing ulcers could be cured by medical treatment. A course of medical treatment, both before and after operation, was highly desirable, and might be an important factor in the avoidance of secondary ulceration; he had found synthetic magnesium trisilicate of great value in treatment. Mr. HARRY MEADE said that in cases with stenosis he carried out a gastro-enterostomy, and in cases without stenosis he did a gastrectomy unless the ulcer was very fixed. Professor V. M. SYNGE said that the important thing was to realize that the cause of duodenal ulcer was not known; there were a variety of treatments, all of which were fairly successful.

RECENT ADVANCES IN RHEUMATISM

At a meeting of the West London Medico-Chirurgical Society on April 8, with Dr. D. G. RICE-OXLEY, the president, in the chair, a discussion took place on recent advances in rheumatism.

Dr. J. F. HALLS-DALLY submitted that rheumatism should be regarded as a series of variable and often interchangeable syndromes. The classification he suggested was: (1) acute or subacute rheumatism; (2) chronic non-specific arthritis, which included (*a*) rheumatoid arthritis (atrophic) and (*b*) osteo-arthritis (hypertrophic); and (3) non-articular forms. Acute rheumatism had certain constitutional peculiarities. Untreated, it was a self-limited malady. If treated in the accepted fashion with salicylates, it yielded to these far more readily than did any other condition in the rheumatic group. Moreover, it was not exclusively an affection of the heart, of the joints, or of the nervous system, for at any time it was capable of involving any of these structures. The real explanation of the similarities between acute rheumatism and rheumatoid arthritis might be found in the assumption that the type of reaction of the body tissues to infection depended on the formation in the blood—not in the tissues—of sufficient antibodies. If these were present in adequate numbers rheumatic fever cleared up, but if there had been insufficient antibody formation, transition into a state indistinguishable from rheumatoid arthritis took place. Rheumatic infection and rheumatoid arthritis were thus more related to one another, as representing variations based on a similar aetiology, than to osteo-arthritis, which he placed in a separate category. Though something was known of the basic as well as of the contributory factors in rheumatism, little was known, and nothing definite had been proved, as to the infective factors. The speaker reviewed the position of research in relation to rheumatoid arthritis and osteo-arthritis. A biochemical investigation of the urine in his experience was of great value in dividing all cases of chronic rheumatism into two main metabolic types. The alkaline urinary or metabolic deficiency type was related to rheumatoid arthritis, and the acid or metabolic excess type to osteo-arthritis or arthrosis. He discussed briefly preventive, general, and special treatment.

Methods of Treatment

Dr. W. S. C. COPEMAN showed a cinematograph film illustrating the typical appearances in chronic rheumatism, with some indications of the technique and results of treatment. Discussing modern advances in treatment, Dr. Copeman placed first physical medicine, and after this gold treatment, which in its limited sphere in rheumatoid arthritis was a major advance. Next came the serial plaster treatment of rheumatoid arthritis, originating from Boston, then the postural methods of Goldthwait and Osgood, manipulations, and finally the injection of novocain and saline into the tender areas of fibrositis to which pain was referred. The history of the organization of the treatment of rheumatism, he said, was recent, not really starting until 1930, when the British Red Cross Society opened its clinic in London. Three years later the Minister of Health allowed physical treatment as an additional benefit under the National Health Insurance Act at approved centres, but to-day there were only three such centres—in London, Sheffield, and Aberdeen.

Dr. C. B. DYSON introduced the subject of the serology of acute rheumatism. He described the bacteriology of rheumatoid arthritis as a "complete fog." In about 85 per cent. of all cases of rheumatoid arthritis there were agglutinins to a significant titre for the haemolytic streptococcus, and yet in these cases the streptococcus was not found as a significant infection. But even if the organism was a secondary invader its presence could do much harm and its removal much good to the patient. The complications of measles, to take a parallel example, were not due to the primary virus but to the secondary invaders.

Local News

ENGLAND AND WALES

Hospitals Day, 1938

The combined hospital flag days in London for 1937 produced a grand total of £32,569, representing an increase on the total annual income which the hospitals concerned used to derive from their individual flag days. When the plan was first started, at the suggestion of the Chief Commissioner of Police for the Metropolis, seventy-seven hospitals joined in, and 108 participated during 1937. This year 135 hospitals are combining. While the special hospitals are to collect in October, the other hospitals will make their collection on Tuesday, May 10, in Inner London and on Saturday, May 14, in the outlying areas. Already Lord Luke, chairman of the London Hospitals Street Collections, has received promises of help from local public authorities situated in the Metropolitan Police District, Messrs. W. H. Smith and Sons, many cinema theatres, hotels, business houses, markets, and the main railway companies. All suggestions and offers of service should be sent to Lord Luke at the headquarters of the Central Committee, 36, Kingsway, W.C.2.

Central Midwives Board

At the April meeting of the Central Midwives Board for England and Wales it was announced that Sir Comyns Berkeley, M.D., F.R.C.P., F.R.C.S., had been unanimously re-elected chairman for the year ending March 31, 1939. The vacancy in the membership of the Board has been filled by the appointment of Miss G. A. B. Cameron (public health department, Newcastle-upon-Tyne). The remainder of the Board, all of whom have been re-appointed until March 31, 1939, consists of: Councillor R. W. Brosch, J. G. Buchan, M.D., Miss K. V. B. Coni, W. Allen Daley, M.D., D.P.H., Mr. H. A. de Montmorency, Miss E. E. Greaves, Eardley Holland, M.D., F.R.C.S., F.R.C.P., Miss A. A. I. Pollard, Lady Richmond, Miss K. J. Stephenson, and Arnold Walker, M.B., F.R.C.S. With regard to the question of examination under the new training and examination rules of the Board it was resolved that the first examination under the new rules, which is, to all interests and purposes, the same as the examination under the existing rules, should be conducted by doctors as at present, but that, having regard to the nature and object of the second examination under the new rules, such examination should be conducted jointly by doctors and State certified midwives.

Orthopaedic Clinics for Yorkshire

A meeting was held recently at the General Infirmary at Leeds to forward the work of the Yorkshire Association for the Care of Cripples. Commander Henderson, of the Wingfield-Morris Orthopaedic Hospital, Headington, near Oxford, dwelt on the need for early treatment of all orthopaedic cases, and said that by the establishment of local clinics a large number of patients could receive skilled treatment without necessarily entering a hospital as in-patients or having to make long journeys for out-patient attendance. It was a great advantage to the patient and to the hospital that surgeons and nurses should visit the smaller towns and rural areas instead of the patients all crowding into one building at stated hours for special treatment. The clinics were in effect scattered out-patient departments of the hospital, but, not being concentrated in one building, they could widen the scope of their work. Miss Miller, organizing secretary of the Yorkshire Association for the Care of Cripples, outlined the work it hoped to do in the county by extensions to existing hospitals

and the establishment of associated after-care clinics. The next step would be to build another orthopaedic hospital in the south of the West Riding and to found a training college for the whole of Yorkshire. Dr. J. Johnstone Jervis, medical officer of health for Leeds, said that the enlarged Thorp Arch Orthopaedic Hospital, when completed, would be the hub of a system, the spokes radiating into all parts of the county.

L.C.C. Hospital Expenditure

The estimated expenditure on the hospital services of the London County Council in the year 1938-9 is £6,309,815, and the estimated income £556,625. The proposals which have already been approved for the further development of the consultant and specialist service at the hospitals involve an increase of about £4,000. The total cost of this service is upwards of £40,000 a year. The new domiciliary midwifery service accounts for an increase of about £41,000 in the estimates, and increased charges for tuberculous patients account for £22,000.

Recognition of L.C.C. Hospitals

More than a year ago the Royal College of Surgeons of England agreed to recognize sixteen of the general hospitals of the London County Council for the purpose of qualification for admission to the final examination for the Fellowship of the College. The same hospitals have now been recognized by the Examining Board in England set up by the Royal College of Physicians of London and the Royal College of Surgeons of England for the purpose of the regulations for obtaining the Diploma in Anaesthetics (D.A., R.C.P. and S. Eng.). In addition seven more of the council's general hospitals, making a total of eighteen, have been granted recognition by the British College of Obstetricians and Gynaecologists as establishments at which the medical staff may qualify for candidature for the Diploma or Membership of the College.

Leprosy in the British Empire

The annual general meeting of the British Empire Leprosy Relief Association took place at the India Office, with Viscount Halifax in the chair, on April 26. Sir William Peel, chairman of the executive committee, in presenting the annual report for 1937 said that there were to-day at least two million lepers in the British Empire, and in spite of the combined efforts of local governments, missionary bodies, and the Relief Association, which worked in co-operation with Toc H, very little had been achieved in checking the incidence. In some colonies it was believed to be tending to increase. Even in colonies where much was being done to care for and treat the leper, little had been achieved in regard to prevention. Some of the more prosperous colonies, such as Malaya and, with the association's help, Nigeria, were doing a great deal to combat the disease; in Hong Kong progress had been retarded owing to economic conditions. Valuable research work was being carried out at Calcutta in co-operation with the School of Tropical Medicine and the Indian Research Fund Association under the direction of Dr. John Lowe. In Madras alone during the first nine months of last year there were nearly 600,000 attendances for treatment at the various centres. Sir Cuthbert Sprawson, retired Major-General I.M.S., a new member of the executive committee, gave an address in which he enlarged on the necessity for educating the public, including the public of the country whose natives suffered from leprosy. The people in those countries, he said, might be uncultured and ignorant, but they had sufficient natural common sense to understand the nature of the danger when it was explained to them, and to appreciate the good intentions of the association's workers. It was interesting, in the same connexion, to consider why leprosy disappeared from England in Plantagenet and Tudor times. Various factors were concerned, no doubt, but the principal one, he thought, was the great interest in leprosy which then existed among all sections of the population. This was shown in the establishment of about 300 leper hospitals in an age when hospitals were not common institutions. It was plain that the whole country was aroused and set itself upon a leprosy campaign, attaining a surprising success when the deficient knowledge and lack of personal hygiene were considered. It was important now to arouse an interest of this nature throughout the affected parts of the Empire and the mother country. Sir Cuthbert described his experiences in conducting a leprosy campaign in the Madras Presidency and the need for the enlistment of enthusiastic social workers, some of them perhaps recovered patients, who were able to demonstrate to the affected people that someone was taking an interest in them, and so encourage them to co-operate in the necessary measures for their own good and the good of the community. Leprosy had raged in some places for so long that there already existed a tribal tradition and an understanding, though imperfect, as to what should be done. In the Laccadive Islands and in the Island of Minicoy the lepers were by a voluntary segregation sent to one end of the island on a peninsula, where they lived happily in their industrial occupations. It was necessary to foster such native public opinion in all infected countries and to organize it on proper lines. It was not within the power of the association to do it directly among large bodies of people, but by approaching the governments it should be possible to secure that the desired propaganda was conveyed to all natives.

SCOTLAND

Edinburgh Orthopaedic Clinic

At the annual meeting on April 4 of the Edinburgh Orthopaedic Clinic Mr. Robert I. Stirling said that this clinic started in 1926 and was formally constituted in 1931 for the benefit of people with limited incomes who required massage, ultra-violet ray treatment, and other forms of physiotherapy, but who were unwilling to avail themselves of free service in hospitals. The clinic was first started especially for the benefit of such persons who were capable of continuing their employment if treatment could be given after working hours. Some of the patients suffered from "rheumatics," some came to the clinic after domestic or industrial accidents or after operations; many came with early static or postural irregularities for which successful preventive measures were of great economic importance. In some instances where the patient could not attend the clinic treatment was carried out in his home. The report showed that during the past year 605 patients had started treatment and 10,296 treatments had been given. Forty-eight patients had been visited during the year, entailing 917 visits. After-care, involving 1,222 treatments, had been given to thirty-six patients from the Princess Margaret Rose Hospital for Crippled Children. The clinic's existing premises were proving too small for the steady increase in the number of patients, and the committee was at present considering the acquisition of new and larger accommodation.

Prevention of Blindness

The W. H. Ross Foundation for the Study of the Prevention of Blindness was opened on April 20 at 20 Lauriston Place, Edinburgh, by Mr. W. S. Douglas, Secretary to the Department of Health for Scotland. Mr. Ross, who has suffered from total blindness since 1933—his eyesight began to fail following an accident in 1929—has endowed this research foundation at a cost of £40,000. In 1935 he deposited this sum with trustees, the income of which, as well as the income from any other donations, was to be applied to the furtherance of investigations into the causes of blindness. Dr. A. H. H. Sinclair, chair-

man of the trustees, said that they would not only investigate the prevention of actual blindness, but would study all forms of deterioration of sight and the enhancement of the visual function. Investigations were already in progress which had entailed the examination of 700 coal miners and 200 shale miners, and work was proceeding with reference to glaucoma. The work was dependent on collaboration of the practitioners of Edinburgh and the good will of ophthalmologists throughout Scotland, and valuable help had been obtained from the staff of the eye department of the Royal Infirmary. It was hoped that Glasgow and other leading ophthalmic centres would eventually give practical help to this cause. The Department of Health for Scotland was also helping in regard to statistics of the causes of blindness. Professor A. J. Ballantyne, Glasgow, said that individual effort could not solve ophthalmological problems, which offered a very wide field for organized research, and the Ross Foundation would find its greatest sphere of usefulness in team work.

Aberdeen Medical Curriculum

The General Council of the University of Aberdeen, at a meeting on April 16, gave general approval to a proposal by the Senatus to add two terms to the present curriculum, thus extending it to seventeen terms. The draft of the new curriculum, which still remains to be adjusted in details, assumes that all students will start medical study at the beginning of the winter term, and in the final year certain special classes will extend over the summer vacation. Dr. Thomas Fraser, in moving general approval of the draft scheme, expressed the hope that the important question of extra-mural teaching would be considered, and he appealed for more attention to child welfare. He also considered that three and a half months' holiday in the summer vacation was too long, and that some of this time might be spent in hospital under supervision. Professor Campbell referred to arrangements that had been made for having a students' residence in the hospital centre at Forresterhill so that the students might take full advantage of clinical instruction in the various hospitals which had been erected there under the joint hospitals scheme.

Fife Medical Officer of Health

The staffing committee of the Fife County Council has appointed Dr. George Matthew Fyfe as medical officer for the county to succeed Dr. Pratt Yule, who is retiring. Dr. Fyfe graduated M.B., Ch.B. at Aberdeen University in 1920, and took the D.P.H. in 1925. For some three years he acted as a Carnegie research assistant in the physiology department of the University, and as assistant medical officer in the clinic to the Ministry of Pensions at Aberdeen. In 1923 he was appointed assistant medical officer of health for Aberdeen, and organized a clinic at the City Fever Hospital. Three years later he became medical officer of health for St. Andrews and bacteriologist to the James Mackenzie Institute for Clinical Research. Following changes under the Local Government (Scotland) Act, 1929, he became in 1930 a deputy medical officer of health for the county of Fife, a post which he still holds.

"Neo-Hippocratism"

Dr. P. K. M'Cowan, physician-superintendent of the Crichton Royal Institution, Dumfries, states in his annual report that the doctrine of neo-hippocratism, or constitutional medicine, has been permeating medical practice during the last twenty or thirty years, and is a return to the basic principles laid down by Hippocrates, with his emphasis on the constitution of the individual patient, including his mental and physical make-up. Neo-hippocratism asserted that we could no longer regard the cells, tissues, and organs of the body as separate units, the real biological unit being the individual. Physiology, with its chemical integration through the endocrines and its nervous integration through the vegetative and central nervous system, had already shown that any smaller unit was an abstraction. Even in the most apparently local disease there was a disturbance through the whole individual, with biochemical changes in the fluids, changes in the nervous system, and psychical changes. These were not merely evidence of disease, but represented the result of a struggle in which the patient mobilized all his resources. The mere diagnosis of disease was therefore not sufficient, but a thorough knowledge of the body-mind of the patient was a necessary preliminary to treatment. To be consistent, treatment should agree with the constitutional principle, aiming at helping the patient's constitution in its struggle. In psychiatry the methods available to help the physical or mental resources of the patient included psychotherapy, physical medicine, heliotherapy, diet, occupation and recreation, endocrinology, and the judicious use of sedative drugs and of drugs acting on the sympathetic nervous system. All these methods of treatment would repay further research. Throughout the history of medicine two principles of treatment were found to crop up in connexion with little-understood diseases—the nihilistic and the chiracistic. The former favoured a negative policy, leaving everything to nature, and was very popular in the mid-nineteenth century, on the basis that curable diseases, if left to run their course, were likely to improve in the absence of needless meddling. The chiracistic principle—called after Chirac, a French physician of the eighteenth century—consisted of excessive intervention, which took the form of repeated bleeding, excessive purgation, and the use of strong drugs; it was the very antithesis of modern constitutional medicine. They must be careful not to transgress the constitutional principle in psychiatric practice, and unless such forms of treatment as hypoglycaemic shock and fits induced by cardiazol in the treatment of schizophrenia were ultimately shown to be in accordance with this principle, their present popularity was likely to be short-lived. It had been found that kindness and individual attention were preferable to fear in the education of the young, and this psychological lesson was equally important in psychiatry.

Edinburgh Postgraduate Courses

The syllabus of the postgraduate courses in medicine to be held in Edinburgh during the summer contains particulars of the instruction obtainable in July, August, and September. From July 11 to 29 there will be a course in obstetrics and gynaecology at the Royal Maternity Hospital and the gynaecological wards of the Royal Infirmary: fee £10 10s. A general practitioners' course will be held from August 15 to September 10: fee £10 10s. for four weeks or £6 6s. for two weeks. A general surgical course will be held concurrently at the same fees. An eight-weeks course on internal medicine will be held from October 17 to December 10: fee £15 15s. This course will be conducted by the honorary staffs of the Royal Infirmary and various special hospitals, and graduates will be attached in groups of four to the charges of the honorary physicians for individual practical and clinical work. In addition to these courses special instruction in individual subjects, such as diseases of the blood and of the nervous system, urology, anaesthesia, neurological surgery, etc., may be taken by graduates specially interested. Graduates may obtain the syllabus from the secretary of postgraduate courses in medicine, University New Buildings, Edinburgh.

On the occasion of the eleventh congress of the German Society for Investigation of the Circulation, recently held at Bad Nauheim, Professor Hess of Zürich was awarded the Carl Ludwig medal, and Professors Spalteholz of Zürich, Jaksch of Prague, Geheimrat Aschoff of Freiburg, and Professor Hering of Kiel were nominated honorary members of the Society.

Correspondence

Classification of Adventitious Sounds

SIR,—Examiners in medicine realize the confusion in the minds of candidates caused by the different terminologies used by their teachers. It would be a great help if we could all use the same terms. Could we not agree, for instance, to abandon the misleading terms "dry" and "moist" when applied to rales, and substitute "rhonchi" and "rales" respectively? Rhonchi would then be described as sonorous or sibilant according to whether they were produced in larger or smaller tubes. Rales would be divided into bubbling (non-consonating, non-crepitant) and crackling rales (consonating, crepitant), and each variety would be subdivided into coarse, medium, and fine. Could we not further agree strictly to confine the term "crepitation" to the finest of all rales, the hair-like crackling sounds heard in early pneumonia, collapse, and oedema, which signify that the parenchyma of the lung is involved? Too often this term—or more briefly "creps"—is used indiscriminately for any kind of rales. This classification appears to be the one most used, and it is given in several standard textbooks. It is simple, and each sound corresponds to a definite physical condition of the lung.

Candidates are also confused about the varieties of breath sounds. The finer distinctions can be left to the experts, but it seems to me that students should at least be expected to recognize vesicular breathing, vesicular breathing with prolonged expiration, broncho-vesicular breathing, and the two varieties of bronchial breathing—tubular and cavernous. A simple explanation of the physical laws governing the production of sounds by fluid passing through tubes of varying calibre, followed by a description of the methods by which each of the various structural alterations, such as consolidation, emphysema, asthma, oedema, cavitation, etc., modifies the sounds, would enable students to make correct deductions from physical signs and visualize the anatomical basis for the sounds. Many candidates do not see any contradiction in stating that they have found vesicular breathing with crackling rales, bronchial breathing over an emphysematous lung, or whispering pectoriloquy with normal breath sounds. The modern student of medicine has a sufficiently difficult task without making it more difficult by the present confusion over physical signs.—I am, etc.,

Birmingham, April 18. W. H. WYNN.

Origin of Cancer

SIR,—The contribution of Dr. W. Cramer on the origin of cancer in the *Journal* of April 16 (p. 829) was of absorbing interest and puts the problem before us in the clearest possible manner. What is now needed is the explanation of the "sudden change" which occurs in a cell, or a small group of cells, in a pre-cancerous area endowing it with the power of continuous growth. I have long been impressed with the analogy between this sudden change in the rate of growth and behaviour of cells and that equally sudden change which occurs in a colony of protozoa when conjugation takes place between two cells. The reproduction of the members of the colony by cell-division has been slowing down, obvious signs of senescence and degeneration have appeared, the death of the whole colony is threatened, and then the whole picture is altered by the conjugation of two of these senescent cells and a new race of young and vigorous cells arises with a vastly enhanced rate of reproduction.

The only instance of conjugation in normal human or animal physiology is that between spermatozoon and ovum, and it endows the resulting zygote with sufficient reproductive impetus to carry on cell-division at a gradually reducing speed until the final exhaustion and death of the organism. But conjugation occurs among the cells of malignant growths, and was described by Bashford, who observed it, as identical with the process of conjugation seen in many protozoa. The cells of malignant growths, therefore, in this respect at least have reverted under the stress of long-continued irritation to an ancestral type and have resumed the habit of reproductive alternation between fission and conjugation. Is not the "sudden change" on which Dr. Cramer lays stress the moment of the first conjugation? Conjugation alone is sufficient to explain the peculiar powers of growth and infiltration of cancer cells, and explains also their apparent immortality through transplant after transplant. Reversion of highly specialized zoological types to primitive prototypes under adverse environmental conditions is of course well known. The development of cancer in a tissue which has been long under stress is from this point of view a triumph of the cell against the threat of extermination.—I am, etc.,

Ashton-under-Lyne, April 19. J. V. FIDDIAN.

SIR,—It is to be regretted that in his otherwise very convincing article on the origin of cancer (*Journal*, April 16, p. 829) Dr. W. Cramer should make one statement that surely must be challenged on purely statistical grounds. He would seem to conclude (pp. 833–4) from the fact that 99 out of 155 women (65 per cent.) with cancer of the buccal cavity and oesophagus have a coincident simple achlorhydric anaemia that this is an abnormally high rate. It may be, or it may not be. For he gives no evidence that among 155 women with, say, grey hair an even higher proportion than 65 per cent. may not have a similar anaemia. However, Dr. Cramer then goes on to argue (presumably from the facts he has quoted) that in "two-thirds of the patients suffering from this type of anaemia" one may expect the subsequent development of cancer in certain sites—that is, buccal cavity and oesophagus—if they are not treated for their anaemia. Surely not? Not even if all the patients with that type of cancer suffer from this form of anaemia must two-thirds of those with the anaemia necessarily suffer from that type of cancer. What is the proportion of women over the age of 40 years who sufier from simple achlorhydric anaemia?—I am, etc.,

London, S.W.19, April 22. G. I. WATSON.

Prevention of Cancer

SIR,—The important papers by Dr. W. E. Gye (March 12, p. 551) and Dr. W. Cramer (April 16, p. 829), and the leading article of April 16 (p. 855), provide authoritative guidance to the cancer problem as it stands to-day. Observe the stress laid by Dr. Cramer on the importance of realizing that cancer is a preventable disease: "The recognition of cancer in man as essentially a preventable disease is, in my opinion, one of the most important results of scientific cancer research." He bases this opinion on the observed fact that the onset of cancer is not sudden but is always preceded by a long period of induction, occupying a considerable fraction of the span of life of the species, during which the tissue in which the

phenomena of malignancy eventually develop undergoes definite pathological changes. "In certain tissues," Dr. Cramer continues, "such as the skin, the tongue, and the vulva—tissues readily accessible to inspection—the existence of pre-cancerous conditions has long been recognized by clinicians," although pathologists have not always agreed that these are special examples of a general phenomenon applicable to the vast bulk of the cases of cancer occurring in all organs.

The growing acceptance of the creed that cancer does not attack a healthy organ or tissue is encouraging; once this is accepted, the prevention of cancer becomes practical politics. In regard to surface cancers—of the skin, lips, tongue, etc.—prevention is agreed to be a matter of avoiding habitual irritation by pipe-stems, jagged or septic teeth, hot drinks, etc.; it is not a long leap to the conclusion, as Dr. Cramer points out, that internal cancers could be prevented by similar, or corresponding, means. In my presidential address to the Hunterian Society on stasis and the prevention of cancer (*British Medical Journal*, December 25, 1920; and Chapter XX of my book, *Chronic Intestinal Stasis*) I discussed this matter and showed, conclusively as I thought, that cancer in every situation occurred only after long periods of chronic disease of the affected organ or tissue. Proof that cancer is not inevitable is afforded by the well-known observations of Sir Robert McCarrison among the people of Hunza (see, for instance, his article in the *Practitioner*, January, 1925). He writes:

"Gastro-intestinal complaints — dyspepsias, gastric and duodenal ulcers, colitis, and appendicitis—are as uncommon amongst them as they are common elsewhere. Even cancer is so rare that in nine years' practice I never came across a case of it. . . . There can be no doubt that their freedom from disease is largely due to the food they eat and the health-giving life they lead in a bracing climate."

A statement often repeated is that "a million people can't be wrong"; this is grotesquely untrue. Not a mere million, but a thousand million people can be, and are, wrong as regards diet. If anyone doubts this, let him mark the complete confirmation afforded by Denmark during the war; this was no less than a large-scale demonstration of the effects of strict dieting on the health of a nation.

Shortage of food was so severe that strict rationing was necessary; this was entrusted to Professor Hindhede, who was given dictatorial powers. Briefly, he placed Denmark on a diet consisting of coarse whole-rye and whole-wheat bread containing a large amount of bran, with small rations of skimmed milk, butter, margarine, potatoes, and a very small amount of meat. (Spirits, tea, and coffee were practically unobtainable.) On this Spartan diet remarkable results were obtained; the death rate for the whole country fell to the lowest level ever seen in any civilized country—namely, 10.4 per thousand. Then came the epidemic of "Spanish influenza" that devastated Europe. Denmark did not escape, but the death rate from influenza was far lower in Denmark than in any other European country. After the war, when rationing was no longer enforced, the Danes gave up the healthy diet imposed by the war, with the result that the death rate soon rose to pre-war figures.

The way to the prevention of cancer is perfectly simple and obvious in itself, but is made extremely difficult because it entails an entire revolution in the habits, especially the feeding habits, of the civilized world. It should be possible for those in authority to ensure a healthy "natural" diet for the entire nation, but it would entail very severe discipline on the part of the people and a dictatorship with unlimited authority to control or suppress undesirable products. Mussolini in one of his first edicts banned white bread and directed that the nation's bread be made from a mixture of whole-meal grains. A similar edict would have to go forth in this country; but equally important and far more difficult would be the drastic curbing, if not the entire prohibition, of those vast industries that fill shop windows and restaurant counters with unwholesome dainties—for example, those made from concentrated sugar, especially sweets, chocolates, and sugary cakes and pastries. The extensive advertising of foods and drinks that can be shown to injure the organs and tissues, especially the digestive organs, would not be allowed; concurrently, every measure would be adopted to persuade the people that the craving for sweetmeats and chocolates is a pernicious one, that it should be conquered, and the palate should be re-trained to enjoy the delicate flavours of natural ripe fruits.

The human race would be healthy on the natural diet for which it was evolved; a return to it may seem Utopian, yet it will have to be faced, and the sooner the better. The firms that unload unwholesome products on the public must transfer their activities to more health-giving ends. I am convinced that the result would be an amazing improvement in the nation's health and would reduce the incidence of cancer to a sporadic case here and there, and not, as some seem to expect, merely transfer its incidence from one organ to another. The Government's scheme for ensuring national fitness will do no more than touch the fringe of the matter if it does not include a very strict supervision of the nation's diet, so as to bring it back to the natural one for which the digestive organs are intended.—I am, etc.,

London, W.1, April 18. ALFRED C. JORDAN.

Carcinoma of the Palate

SIR,—Dr. John R. Nuttall's paper in the *Journal* of April 16 (p. 839), drawing attention to the relation between neoplastic lesions of the palate and those of the maxillary antrum, will do much to effect earlier treatment of these cases. When the antrum is not completely filled by new growth my method (*Journal*, July 10, 1926, p. 58) of injecting lipiodol into the antrum before *x*-ray examination usually outlines the neoplasm successfully. Neoplasms of the antrum at times are missed by the rhinologist because he has drained an antrum, which he has presumed to be simply the seat of sepsis, by the intranasal method. The Caldwell-Luc or Denker procedures would have prevented this failure.—I am, etc.,

Manchester, April 17. W. BRYCE MCKELVIE.

SIR,—Dr. John R. Nuttall in his article in the *Journal* of April 16 (p. 839) draws attention to the fact that in quite a large proportion of patients suffering from carcinoma of the roof of the mouth the disease has already involved the antrum; indeed the buccal lesion may be merely an extension of an antral growth. All the cases referred to have evidently been treated by irradiation. Before treatment investigations were carried out in order to ascertain whether or not the antrum was involved; some reliance was evidently placed on what is called the needle test. This can be of no value in estimating the extent of the antral involvement, and, moreover, it might lead to dissemination of the disease. During a surgical operation it is always possible to discover the extent to which the disease has invaded the antral walls, but obviously it is generally impossible to say whether it originated in the mucous membrane of the antrum or in that of the alveolus. By a technique in which surgery and electrocoagulation are combined, all tumours which

are reasonably localized, and some which are rather extensive, can be dealt with, the risk to the patient being practically negligible. In my opinion surgery without irradiation is much more likely to lead to permanent freedom from the disease than is irradiation without surgery, although in some cases the two methods may be combined with great advantage to the patient.

One of the merits of a surgical procedure is the large opening which results from removal of generally the greater part of the roof of the mouth on the affected side. Through the resulting opening the walls of the operation cavity can be periodically inspected, and if a recurrence takes place its position can be located with some certainty and suitable treatment adopted; the opening much facilitates, should such treatment be thought desirable, the local application of radium. Even in cases where the disease does not appear to have affected the hard palate a portion of the roof of the mouth should be removed, if only to render thorough after-inspection of the region more easy. The defect in the palate can easily be filled up by a suitable dental appliance. The published records of treatment by irradiation do not encourage me to abandon surgical measures, which I have employed for the last twenty-five years and which, owing to improved technique, are giving much better results than were formerly obtainable.—I am, etc.,

London, W.1, April 21. NORMAN PATTERSON.

After-effects of Modern Treatment of Carcinoma

SIR,—Mr. Percy Furnivall's account of his treatment by radium and *x* rays and the after-effects (*Journal*, February 26, p. 450) has brought forth a goodly correspondence in your columns. He has done a service in stating his experience, and all interested will wish him a speedy and complete recovery.

In this letter I am concerned not with the dosage of radium and *x* rays but with the medical treatment of the patient. Apart from the treatment of pain, if any, and general considerations for the patient's comfort, I have found that a great deal can be done towards well-being and recovery by a careful watch on the blood condition and the administration, where anaemia exists in however small degree, of liver extract, with, perhaps, iron in an easily assimilable form. My attention was first drawn to this subject by an account in the *Journal* about four years ago in which Dr. J. H. Douglas Webster described the successful treatment of *x*-ray sickness by intramuscular injections of liver extract. Also there appeared about the same time in the Epitome of Current Medical Literature a description of similar good results from a Continental source. But besides this primary form of irradiation sickness, which usually passes off in a day or two, there is the delayed type, in which real ill-health persists, more or less, for a considerable period of time.

The formed elements of the blood are all affected by radiations, the erythropoietic tissues less than the leucopoietic; but the red cells and haemoglobin may be severely affected where some degree of anaemia is present previous to radium and *x*-ray therapy.

In the patient suffering from carcinoma and in a debilitated state of health, probably following operation and loss of blood, an anaemia already exists. Hence the necessity for a blood count and the administration of liver extract and iron before radiation, if required, and certainly during treatment and for some time afterwards. During the last few years I have given these patients, according to their degree of anaemia and debility, capsules containing liver extract with a trace of iron and vitamin B, much to their benefit. Contraindication to this tonic treatment may be found in a very few cases.—I am, etc.,

Hove, April 16. J. M. ANDERSON, M.D.

SIR,—Mr. Musgrave Woodman's letter (*Journal*, April 16, p. 871) proposing team-work shows a way in which radiotherapy may be carried out efficiently and which may assist materially in avoiding the disastrous after-effects which have been described in the recent correspondence. The most distressing after-effects would appear to have arisen when radium has been given in conjunction with *x*-ray therapy, and therefore the radiologist should be included in the team in order to ensure co-operation between the radium and *x*-ray therapists.

At the regional radium centre at the Royal Hospital, Wolverhampton, team-work in radiotherapeutics has been the rule during the past eight years. Radium therapy is controlled by a radium committee, which, from small beginnings, now consists of all members of the staff who use radium, including the pathologist and radiologist. This committee meets weekly and all new patients for whom radium treatment is proposed are examined, and after consultation the patient is treated by the member of the staff introducing the case. All old cases attend these meetings for examination and follow-up study. No patient receives radium treatment unless he or she has been brought before the radium committee, except in cases of emergency, such cases being reported at the next meeting. Radium therapists may object to loss of independence by this procedure, but in this hospital no objections have been raised and the conditions have been willingly and loyally observed. It is considered that the facilities for consultation and the opportunity of seeing a number of cases throughout the course of their treatment by different methods more than compensate for any loss of individuality. Throughout the course of his disease the patient is treated by a team, and the dangers of complications from irradiation are minimized, especially in those cases in which the application of radium is followed by deep *x*-ray therapy.—I am, etc.,

G. E. DYAS,
Chairman, Radium Committee, Royal
Wolverhampton, April 25. Hospital, Wolverhampton.

Control of Sulphanilamide Treatment

SIR,—Under the above heading Dr. W. J. Hohmann (*Journal*, April 23, p. 923) suggests that white cell counts in patients under treatment with sulphanilamide might well be undertaken as a routine so that some indication may be given of possible toxic effects before rather than after the event. The suggestion that such counts would give the desired warning has been made before in regard to this and other drugs, but in reporting a fatal case (*Journal*, July 17, 1937, p. 105) I drew attention to the fact that serial leucocyte counts had given no warning of impending agranulocytosis. Similar observations appear to have been made in other fatal cases. Test doses of amidopyrin in some recovered cases apparently due to the latter drug have, however, shown granulopenic reactions, so the procedure may be useful in some instances. Nevertheless the amount of labour involved in carrying out serial leucocyte counts in all patients receiving drugs producing agranulocytosis usually renders such a proceeding impracticable. Davis and Frissell (*J. Lab. clin. Med.*, 1937, **23**, 107) reported observations on the leucocytes in a series of thirty-two cases treated with amidopyrin, and in none did they observe any important effects. This, they suggested,

might be due to the fact that treatment was always stopped on the occurrence of any symptoms of toxicity such as indigestion, lack of appetite, or dizziness. The value of such a method is doubtful, but it would at least be more practicable than routine leucocyte counts.—I am, etc.,

Royal Infirmary, Bradford, April 24. C. J. YOUNG.

First Mention of Sulphonamide

SIR,—Recent correspondence in your columns prompts me to call attention to what I think has been overlooked by workers on the chemotherapy of sulphonamides. I refer to a suggestion made as long ago as 1919 by Heidelberger and Jacobs, who published a series of papers on "Syntheses in the Cinchona Series," of which the third was called "Azo Dyes derived from Hydrocupreine and Hydrocupreidine" (*J. Amer. chem. Soc.*, **41**, 2131). In this paper they describe the preparation of the meta- and the para-phenylazo-derivatives of hydrocupreine, and refer in passing to the preparation of *m*- and *p*-aminobenzene-sulphonamides, both of them substances already known. The point of historical interest is that these authors wrote (p. 2132): "Many of the substances described in this paper were highly bactericidal *in vitro*, a property which will be discussed in the appropriate place by our colleague, Dr. Martha Wollstein."

A search of the literature between 1919 and the present day having failed to reveal any publication by Dr. Wollstein, I communicated with Professor Heidelberger last summer on the matter. He was good enough to explain that they had been unlucky in their choice of substances to investigate, for "the bactericidal power of the sulphonamido-azo-hydrocupreines was not as high as some of the other substituted dyes, nor were the animal experiments encouraging." Professor Heidelberger added that he could not recall whether any therapeutic tests were ever carried out with this dye; Dr. Wollstein's work was brought to an end, and no account of it was ever published. It is true that no reference is made, in the words of Heidelberger and Jacobs quoted above, specifically to the simple sulphonamides, or to their azo-compounds with alkaloids, and it would probably not be claimed by these authors that they had actually forecast the bactericidal properties of the sulphonamides. Nevertheless, the passage quoted does suggest the possibility of further chemo-therapeutic studies, and one cannot help wondering whether some of the subsequent work may not have been inspired by this paper, which was published from the Rockefeller Institute. The inspiration must, in that event, have been subconscious, for it has not been possible to find in the publications of German investigators any reference to the work of Heidelberger and Jacobs. Professor Heidelberger himself believes that some reference was made in one of the earlier papers by the French workers, but I have not been able to trace this.—I am, etc.,

A. L. BACHARACH, M.A., F.I.C.

Greenford, Middlesex, April 21.

Is it Influenza?

SIR,—Is it possible that influenza can at times show atypical attacks which breed true to type in the form of an epidemic, or must the symptoms always be classical for the diagnosis of influenza to be made? We are often told, for instance, to beware of labelling cases of early tuberculosis as influenza; but what is one to call such a collection as the following?

There has been here this last winter an epidemic of catarrh of the upper air passages, characterized by insidious onset and great resistance to the usual forms of treatment, and even to well-tried palliatives. Tracheitis has been the most outstanding feature; but there has often occurred as well a pharyngitis involving the soft palate but leaving the tonsils almost unaffected. The typical appearance was as if a streak of red paint had been placed upon each anterior pillar; and the accompanying subjective feeling was of a most annoying tightness in the throat, without actual difficulty in swallowing. The nasopharynx and even the middle ear have also been involved fairly often. These symptoms, besides being insidious in onset, were liable to fluctuations from day to day, so that it was difficult to say when a patient had really recovered. There was no prostration, and yet many people found it impossible to continue their work while the disease was at its worst. Many showed no rise in temperature.

The symptoms do not sound very striking on paper, but it has been obvious that all the cases belonged to a definite disease entity. It has usually been dubbed "influenza" on certificates, but when compared with the epidemic of the preceding winter it seems to have been misnamed. As was seen in the first epidemic, and in sporadic cases, influenza strikes with dramatic suddenness; but victims of this epidemic have succumbed slowly and protestingly, and they have not been prostrated; rather have they been annoyed at the disconcerting disability produced by seemingly trivial symptoms. The intractability of the cough, etc., have been mentioned as features of influenza, and in this respect the disease can lay claim to the name. But the usual depression of convalescence has been lacking, and this is always emphasized in true influenza. I have not made a count of the total number of cases I have seen, but I am convinced they have been as many as the typical influenzal ones the year before; so that the term "epidemic" is permissible, I think. And it will be obvious that enough cases have been seen for one to feel certain of the facts.

I believe that there has been here a new infectious disease of the upper air passages; if not, then the usual descriptions of influenza must be revised to include such epidemics as this.—I am, etc.,

Redruth, Cornwall, April 22. L. A. RIDDELL.

Influenza, a Misused Term?

SIR,—Claiming that the causative organism of influenza has at last been discovered and that the study of the symptoms of 120 patients, chiefly in the hospitals of the defence services, has established its symptomatology, the Medical Research Council in its annual report seeks to criticize the popular use of the term "influenza."

There is a heterogeneous mass of ailments in general practice which go by the name of minor maladies. It is the periodic exacerbation of certain of these maladies which has been called epidemics of influenza. Save for the numbers affected there is nothing unusual about the ailments of these periods; what relation, therefore, if any, have these exacerbations to the illness described in the annual report as the "real epidemic influenza"?

Following the pandemic of 1918–19 a report was issued by the Ministry of Health. It contains a description of the symptoms of that pandemic, and the writer stated that he was not prepared to call it "influenza." It is worth studying again, for the summer and winter epidemics, according to the writer, "presented very different clinical features." Which of those was the real epidemic? Certainly the graver winter epidemic looks more like that condition which in the M.R.C. annual report is described as "febrile catarrh," and one should note that among

the symptoms of the Council's "real epidemic influenza" there is now no mention of the dreaded blueness of that period.

I possess a day-to-day record of the symptoms of new patients as they presented themselves during the 1922 epidemic, and there is an obvious variation in the symptomatology of the epidemic as between its initial and terminal stages. As the patients affected presented no fixed symptomatology that epidemic must fall from grace. I cannot write of the next three epidemics in any definite detail; but during those periods it became more apparent than ever that the well-fed healthy type of individual was the readiest sufferer. Sir William Hamer's observations in regard to types led to the analysis of the 1922 epidemic which is used above, and the sequence of the clinical signs revealed in that analysis induced me to study the 1936 epidemic from a new view-point. There was the same variation in symptomatology; but it was evident that this variation was related to a different type of individual affected at different stages of the epidemic. Therefore, the 1936 epidemic fails also to have been a "real epidemic of influenza." Isolated cases of illness described in the report I have often seen; but never enough at any one period to deserve the name of epidemic. Furthermore, it can be demonstrated in any epidemic that if the minor malady is properly handled when it appears in a household deaths and complications are negligible.

If the symptomatology of segregated individuals is different from the symptomatology of individuals in ordinary life during similar periods then it raises many interesting conjectures. Some of these can have a bearing on the bacteriology of the condition. I am not interested in influenza from this standpoint because I still fail to see that it can have any practical value (can we vaccinate a population?), but as the accusation of "misuse of the term" comes from this angle I would like to draw attention to a discrepancy in the report.

If reference be made to the articles in the *Journal* of September 11, 1937 (pp. 513, 516), by Drs. C. H. Andrewes and C. H. Stuart Harris—and it is on their work that the Medical Research Council relies to a great extent for its information—it will be noticed with regard to the so-called "febrile catarrhs" that the statement "influenzal virus was not recovered" is converted into "influenzal virus is not concerned." There still remains a possibility, therefore, that influenza may be found after all to cover many different manifestations. It is not from any desire to criticize any research work nor to trouble the Council with my own, but the Council can have little idea of how such premature assertions can affect panel doctors. The report will come before the Ministry, and another formula will be devised to tighten the certification of incapacity, and unless the panel doctor is prepared to face an inquisition the term "influenza" must go. In spite of that, there is a connecting thread running through the whole problem of minor maladies, whether it be concealed under a conglomeration of names or indicated by one.—I am, etc.,

Halifax, April 23. A. GARVIE.

Calcium and Phosphorus Deficiencies

SIR,—In the paper by W. E. Gaunt, J. T. Irving, and W. Thomson in the *Journal* of April 9 (p. 770) the statement is made that "numerous experiments with large animals have demonstrated that calcium and phosphorus lack is a common cause of deficiency disease, retardation of growth, and low viability in young at birth." As the main authority for this statement the papers of Elliot, Crichton, and Orr (1922), and Elliot and Crichton (1926) are cited. In the former paper it is alleged that rickets is due to a lack of calcium in the diet and that the disease can be prevented or cured by raising the proportion of calcium in the ration to that of the phosphorus. During the years 1922–6 I had the opportunity of closely observing in the piggery attached to the Rowett Institute (which had an annual population of hundreds of susceptible pigs) the effect of this "balancing" of the ration of the calcium to that of the phosphorus. Rickets, as a natural disease, occurs most often in January and February (owing to the lack of sunlight), and in the stock just alluded to, fed on this "balanced" ration, during January and February of these years hardly a pig which could be the subject of the disease escaped it.

The second paper cited has reference to the effect on young sheep of adding calcium to a ration "deficient" in this substance. I refrain from discussing the merits of this contribution; but I have in my possession complete protocols (which were and are available to all workers in the Institute) of two much more elaborate and detailed experiments of the same type, carried out at a later date in the Rowett Institute under essentially the same supervision. The first of these experiments is designated in the official record as "sheep experiment, No. 8," and was conducted during the autumn, winter, and spring of the year 1928–9. It is recorded that the group on the basal ration with calcium "adjusted" by the addition of calcium carbonate showed marked "bent-leg," "stiffness," "going-off legs," "walking with difficulty," loss of weight, and loss of health. As evidence of the two latter conditions one notes that at a time when in other groups as many as six animals were being sold at prices ranging from 36s. 9d. to 47s. 3d. each, only two out of this group were saleable, and for these 26s. 9d. per head was obtained.

The second experiment is termed officially "Garrochoran sheep at Rowett Institute, experiment 1," and was carried out during the autumn, winter, and spring of the year 1931–2. In this case group 3, in which the basal ration was "balanced" with calcium carbonate, showed "stiffness" and "bent-leg," while the weights of the animals and the calcium in the blood (ranging from 6.65 to 8.75 mg. per 100 ml. from March 10 to March 17, 1932) were of the same order as those in the sheep fed on the basal ration.

It seems to be the opinion of Gaunt and his co-workers that the addition of calcium salts (their views on the additions of phosphorus salts are not quite clear) to the "survey diet" (human) greatly improves this diet as tested on rats. Unless rats have a metabolism differing from that of the other animals experimented on this result is completely out of harmony with those obtained in the pigs above referred to, in the pigs discussed in my paper in the *Journal* (1933, **2**, 599), in the sheep of experiments 8 and 1, and in chickens (McGowan and Emslie, *Biochem. J.*, 1934, **28**, 1503). The crucial factor in these cases is, of course, vitamin D, which is not mentioned in the paper under discussion.—I am, etc.,

Aberdeen, April 21. J. P. MCGOWAN.

Abuse of Ephedrine

SIR,—As a fairly frequent sufferer from common colds, it was with some interest that I read Dr. R. R. Foote's letter on the abuse of ephedrine (*Journal*, April 16, p. 874). My rhinorrhoea ordinarily lasts a fortnight, and has exceeded this time on one occasion only. This was when I made use of an oily preparation containing ephedrine, and the rhinorrhoea persisted for over a month, my nasal mucosa remaining congested during this time

and the airway becoming intermittently blocked. I am therefore of a mind with Dr. Foote when he suggests that such preparations may damage the nasal mucosa. I do not agree, however, that inflammation of the antra is the usual end-result. On the contrary, I think that the occurrence of pain in the sinuses—frontal, maxillary, or ethmoidal, as the case may be—is the main indication for the use of oily preparations containing ephedrine. As there is a risk of damaging the mucosa in some individuals, I give the preparation once or twice daily only in these cases, according to the result. I also instruct the patient, when he has finished instilling the drops, to adopt for a short time such an attitude as may be consistent with the drainage of the sinus which gives rise to the discomfort. I have used this treatment with success in some cases where a family history of antral trouble was given. The extent to which the mucosa of the sinuses inflames during the average common cold is not accurately known, for the disease is not lethal. It seems to me unlikely that the intranasal instillation of vasoconstrictors leads to their introduction into the sinuses in such quantity as may directly affect the mucosa one way or the other. On the other hand, the shrinkage of the membrane in the neighbourhood of the ostia is probably beneficial, promoting free drainage if the application has been made successfully.—I am, etc.,

Grangemouth, April 19. J. M. HENDERSON.

SIR,—In your issue of April 16 Dr. R. R. Foote suggests that his experiences may call forth some confirmatory evidence. May I hope that you may find space for the following?

The artificial production of vasoconstriction and the drying-up of the secretions is contrary to nature. The moisture secreted by the mucous lining of the walls of the nose is essential for the normal hygiene of the respiratory passages. The sudden increase caused by irritating particles or by the common cold must be recognized as a cleansing flow to be encouraged and followed by the clearing blow. In no case can it be safely inhibited. Repeated attempts to desiccate the surface will result in a sort of tanning process, with loss of sensitivity, so that the call to clear is not recognized even if it comes. Then again, the vitality of the cilia is diminished or lost, for they cannot survive on a dry surface. Oily emulsions, too, impede their action. The temporary relief that comes from the widening of the airway as the mucous membrane shrinks is so welcomed by the victim that he almost naturally tends to make it permanent. When that has been accomplished the foreign matter accumulates. The germs cease to be disturbed and routed out, so that they flourish and multiply in the incubator-like cavities. The toxic products are scattered as they form, infecting the neighbouring structures or the blood stream.

The germicidal properties of the nasal, as of the lacrimal fluids, are of the utmost importance for the general welfare.—I am, etc.,

OCTAVIA LEWIN, M.B., B.S.Lond.

Auricular Fibrillation in Cardiazol Treatment of Schizophrenia

SIR,—The following case appears worthy of note.

The patient, an intelligent man of 33, formerly an engineer, had been suffering from catatonic stupor since 1931. He was resistive, negativistic, mute, and destructive. His habits were degraded, and he was incontinent of urine and faeces and coprophagic. It was decided to include him in a series of cases suitable for cardiazol convulsant therapy. A physical examination showed no abnormality, and there was nothing significant in the history. Preliminary investigations of the blood bromide, blood urea, and urine were carried out according to routine. These were all found to be normal. The blood pressure was 120/85 mm. Hg. On March 23, 1938, at 11.30 a.m., he was given an intravenous injection of 5 c.cm. of a 10 per cent. solution of cardiazol into the right antecubital fossa. A major convulsion followed immediately with tonic and clonic phases. The patient appeared rather paler than usual, and frothed a good deal through his nose. His pulse had become irregular in rate and volume, and showed the characteristic features of auricular fibrillation; the rate was about 90. The heart was not enlarged. Injections of digitalin and strychnine were given, followed by tr. digitalis by mouth. The heart continued to fibrillate for twenty-four hours, the rate varying between 64 and 118, but was usually between 70 and 90. The digitalis mixture was discontinued, and the pulse remained regular and has been so ever since.

On March 26 he passed some blood and mucus per rectum with a great number of threadworms; no more have been passed since then. A blood count revealed no abnormality. The red cell count was 5,350,000, haemoglobin 100 per cent., colour index 0.93; the leucocyte count was 7,800 and there was no eosinophilia; the diameter of the red cells was 7.3 μ. His weight has varied from 11 st. to 7 st. At present it is 9 st. 8 lb. It was not considered advisable in the circumstances to continue with the cardiazol injections.—I am, etc.,

Cefn Coed Hospital, Swansea, April 11. S. H. LUBNER.

Chronic Littritis

SIR,—Might I finally sum up my views as to the mechanics of hand syringing applied to the urethra? In the experiment reported by Dr. Sydney M. Laird (*Journal*, April 9, p. 816) the pressure recorded by the manometer is in the case of the douche a close approximation to that applied to the urethra; but in the case of the syringe, by reason of Bramah's principle, the level of the manometer will depend on the relation between the cross-section of the syringe and that of the tube, as well as on the force exerted on the piston. Dr. Laird applied a ligature to represent the contracted sphincter of the urethra. Under natural conditions the anterior urethra when this sphincter is contracted forms with the syringe a closed system, without the relief afforded by the side tube in the experiment. When the system is filled with fluid—which is of course incompressible—the force tending to drive fluid into the glands of Littré is NP + E lb. per square inch (where P is the pressure applied to the piston, and E the elastic recoil of the peri-urethral tissues, both measured in lb. per square inch); in the case of the douche at a height of 3 ft. this force cannot exceed 1.2 (hydrostatic pressure) + E lb. per square inch. Since a pressure of more than 1.2 lb. per square inch can easily be exerted on the piston it is clear that more force can be applied with a syringe than with a douche. It seems to be true that with a relaxed sphincter the pressure produced by a syringe will be even lower than that produced by a douche, but it is easy to see that in either case the pressure will be low by reason of the comparatively free flow into the bladder.

In actual practice the properly instructed patient relaxes the sphincter when using a douche, and even if he fails to do so the resultant pressure is low and has a maximum value fixed by the height of the douche. The syringe is commonly used by the ignorant who do not know how to relax the sphincter, nor the importance of doing so; it is also probably easier to acquire the art of relaxing the sphincter when it is subjected to continuous but low pressure than when brief but forcible pressure is applied. I submit, therefore, that the contention that the hand syringe can produce excessive intra-urethral pressure

is maintained, but I must also apologize for certain obvious fallacies in the reasoning which I previously advanced in support of this conclusion.—I am, etc.,

Salford, April 23. R. C. WEBSTER.

SIR,—This correspondence on the aetiology of chronic littritis between Dr. R. C. Webster and myself has already encroached considerably on the space in the *Journal*, and, therefore, I cannot comment on Dr. Webster's remarks concerning car maintenance, ear-syringing, and infiltration anaesthesia (*Journal*, April 23, p. 921). All are irrelevant to the discussion, as it is manifest that the irrigation obtained by the patient using a hand syringe is not comparable with that possible when an independent operator is conducting the manœuvre. In conclusion, may I express the hope that this correspondence, far from detracting from the very real value of the major part of Dr. Webster's original paper (*Journal*, February 26, p. 448), has actually focused increased attention upon it.—I am, etc.,

Liverpool, April 23. SYDNEY M. LAIRD.

*** This correspondence is now closed.—ED., *B.M.J.*

Pasteurization of Milk

SIR,—I have received several letters suggesting that my part in the milk controversy is animated by a financial interest in a certain milk supply company. As that may influence some of those interested I wish at once to say that I have not one penny invested in any such company and never had, much to my regret. I have no axe to grind. Like Dr. C. O. Hawthorne (*Journal*, April 23, p. 917), I do not think that the theory that pasteurization of milk has any appreciable influence on fertility is of any importance when weighed against the necessity for a clean and germ-free milk supply. The buck and doe test cuts no ice; this can be said of most tests. A healthy nation, even supposing it should be slightly less fertile, is far and away a sounder proposition than a large nation whose stamina is undermined by a contaminated milk supply. The fall in the birth rate is not, as we know well, dependent on diet but on those preaching a gospel of birth control—whether rightly or wrongly does not enter into this discussion.

Neither "Certified," "Grade A," nor "Grade A T.T." milk is safe, as they all contain living active bacteria. Cows tested for tuberculosis to-day may be negative, but the same cows tested in three months may be positive. During that interval milk from these cows has been supplied to the public. Therefore there is no definite guarantee that milk from a T.T. herd is free from tubercle bacilli unless and until it has been pasteurized.

I give place to no one in my desire that milk producers and farmers should have all the encouragement and help that it is possible to give them, but that does not override a greater desire to see being built up a healthier and sounder nation than we have to-day. Of course, an ideal milk is a raw milk, provided such can be produced that is clean, pure, and uncontaminated. To this day such a milk has never been procurable.

To the question put to me in the letter by Lord Rowallan (April 23, p. 918) regarding the pathogenicity of *Bact. coli*, it must be quite evident from my letter that I regard all *Bact. coli* as pathogenic. I regret that I do not quite grasp what is the meaning of the request for experiments to decide the relative growth in raw and pasteurized milk of pathogenic germs which have passed successfully through the process. What process is referred to? If pasteurization is meant, no pathogenic germs have successfully passed through the process. Any such found in pasteurized milk subsequently to pasteurization have been introduced after the cap has been interfered with. Pasteurization does not prevent subsequent contamination if the milk is improperly handled or stored.

The question of a national milk supply resolves itself into this. What class of milk is likely to be most beneficial to the general health and stamina of the nation? Is it to be raw milk containing living active pathogenic bacteria, even if the fertility and vitamin ratios are unimpaired, or pasteurized milk which is clean and germ-free, but which may be slightly deficient in its vitamin and fertility balance? The answer is self-evident.—I am, etc.,

London, S.W.16, April 23. JAMES KIRKLAND.

Distress in China: An Appeal

SIR,—It is difficult, if not impossible, for people in this country to realize the extent and severity of the destitution and physical suffering of many thousands of the Chinese resulting from the present hostilities. Recent events in Europe, together with the remoteness of China, have also distracted attention from the catastrophe in the Far East. During the last five months we have received the most urgent appeals for help, and have brought them to the attention of the excellent organizations that are doing everything possible to mitigate the distress in the provinces of China where suffering is greatest. The answer has invariably been the same: "Every penny that comes in is pledged in advance to support the relief schemes already in operation—we cannot consider any new commitments."

A letter dated February 7, 1938, coming from Dr. C. Y. Wu, Director of the Chinese Red Cross, Hong Kong Bureau, contains the following passage:

"We are still urgently in need of the more valuable supplies, such as surgical instruments, sera, adrenaline, calomel, coramine, ferrous carbonate 0.3 gramme, ferri et ammon. citrat., rubber gloves, Thomas splints, oil cloth, gauze and gauze bandages 6 inches by 5 yards, autoclaves, anaesthetic masks, kerosene burners, instrument sterilizers, rubber tourniquets and tubing, etc. Funds are also urgently needed to finance our field mobile units. Each unit consists of five surgeons and fifteen dressers, nurses, and orderlies. We now have thirty-five such units operating at the various fronts, and it requires a minimum of 40,000 dollars monthly to upkeep them, without counting the cost of medical and surgical equipment. 7,200 dollars will support one unit for six months. I hope you can assist us in this matter."

It seems to us that this appeal should be addressed direct to the profession in this country. Here is something specific, where a small gift in money or in kind will surely be turned to account. Some may feel that whatever is collected will be no more than a drop of relief in a vast ocean of suffering. This is not the view of those who are caring for the victims of war and famine in China.

The signatories of this letter are prepared to take personal responsibility for receiving and transmitting all gifts from the medical profession to Dr. Wu in Hong Kong, and it is our earnest hope that we shall have a great deal of work to do. The address for reception of gifts of all kinds is the China Institute, 91, Gower Street, London, W.C.1.—We are, etc.,

MILLAIS CULPIN,
One-time Surgeon to Shanghai-Nanking Railway Hospital.
W. C. W. NIXON,
Late Professor of Obstetrics and Gynaecology, Hong Kong University.
H. J. SEDDON.

London, W.C.1, April 25.

Obituary

SURGEON VICE-ADMIRAL SIR ROBERT HILL, K.C.B., K.C.M.G., F.R.C.S.

Surgeon Vice-Admiral Sir Robert Hill, R.N. (ret.), who died at Henley-on-Thames on April 18, was Principal Medical Officer of the Grand Fleet during the last two years of the war, and Director-General of the Medical Department of the Admiralty from 1919 to 1923, in which year he retired from the Service.

Born on July 25, 1865, the son of Dr. Samuel Hill, he was educated at the Middlesex Hospital, and took the M.R.C.S., L.R.C.P., and L.S.A. in 1888. He was elected F.R.C.S.Eng. in 1923, and also received the honorary F.R.C.S.Ed. Entering the Navy after qualifying, in a varied and interesting career he served in the *Ophir* during the Royal colonial tour of 1901; in H.M.S. *Renown* when King George V and Queen Mary, then Prince and Princess of Wales, visited India in 1906; again in 1911–12 he was with Their Majesties in the *Medina* on the occasion of their voyage to India for the Durbar. During the war he served in the North Sea, and from 1916 to 1919 was Principal Medical Officer of the Grand Fleet. In 1919 he became Director-General of the Medical Department of the Royal Navy, and held that post for four years. He received the M.V.O. in 1906; in 1912 the C.V.O.; in 1918 the C.B.; in 1919 the K.C.M.G.; and in 1922 the K.C.B. He also received the Distinguished Service Medal of the United States Army and the second-class of the Russian Order of St. Stanislaus. In 1923 he was appointed Honorary Surgeon to the King, and in 1926 received a Good Service pension, left vacant by the death of Sir Henry Norbury.

After his retirement Sir Robert Hill lived for some years in London, at Whitehall Court. In 1929 he went to reside at Henley, where he took an active interest in local affairs: he was vice-president of the Henley Branch of the British Legion and at one time president of the Henley Golf Club; he was also a director of the Star and Garter Home at Richmond. Queen Mary never lost touch with him, and the last letter he was able to understand was one from Her Majesty written only a few days before his death, which gave him the utmost pleasure; she wrote to him every Christmas. He never married, but had a very large circle of close friends.

The funeral on April 22 at Remenham Church, near Henley, was attended by the First Sea Lord, Lord Chatfield; the Medical Director-General, Surgeon Vice-Admiral P. T. Nicholls; Admiral Sir John Green; and Surgeon Rear-Admiral H. C. Whiteside.

Sir Humphry Rolleston writes:

Robert Hill was a keen athlete, especially as a Rugby football player at the Middlesex Hospital, and this was one of his special qualifications for the post of staff surgeon at Osborne College when it first opened. There he had a busy time; for many of the cadets who had not previously had some of the infections of childhood were attacked by measles and so forth, thus causing much anxiety among their parents and some undue public notoriety. An epidemic of conjunctivitis, common in all schools, was very seriously taken as "pink eye," and ingeniously, if erroneously, ascribed by the public to the site of the Osborne dormitories over or close to the stables of Queen Victoria at Osborne House; the connexion with horses was that an outbreak of so-called pink eye among horses in South Africa had occurred in the Boer War.

Hill held many appointments. In 1907 he was appointed operating surgeon at the Naval Hospital, Bighi, Malta, and at the outbreak of war was in medical charge of the Marine Depot at Deal, where cases of cerebrospinal fever occurred early in 1915. In 1916 he became Principal Medical Officer to the Grand Fleet, being on the staff of the Commander-in-Chief, first Lord Jellicoe in the *Iron Duke* and later Lord Beatty in the *Queen Elizabeth*. He had been awarded accelerated promotion at an earlier period in his career, and as he was not appointed to any of the main Royal Naval Hospitals—Haslar, Plymouth, or Chatham—after the war, but was promoted Director-General of the Medical Department of the Admiralty with the rank of Surgeon Vice-Admiral (1919–23), he was retired early, before the age of 60. But he then freely gave his services to the Red Cross and to other charitable objects, especially for ex-Service men.

An able surgeon and efficient administrator, with an extremely friendly, cheerful, and approachable personality, who often kept in touch with former patients, he had troops of friends whom he was always delighted to see and to help. He deservedly received many honours, was

a "clubbable" companion, and was much in request on the committees of the Army and Navy Club. For some months he had been in failing health, and his appearance had made his friends anxious.

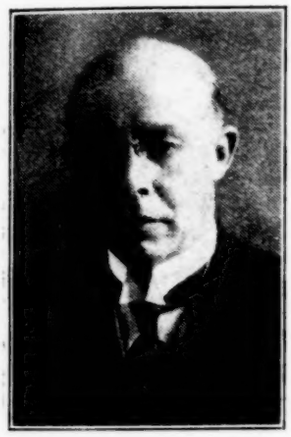
JOHN BRIGHT BANISTER, M.D.,

F.R.C.P., F.R.C.S.Ed., F.C.O.G.

Senior Obstetric Physician, Charing Cross Hospital

Mr. J. Bright Banister, the well-known London obstetrician and gynaecologist, died suddenly on April 16, aged 58. His principal appointments were those of obstetric physician and lecturer on obstetrics and gynaecology at Charing Cross Hospital and chairman of the Medical Committee, surgeon to the Chelsea Hospital for Women, and consulting obstetric surgeon to Queen Charlotte's Maternity Hospital.

The eldest son of Howard C. Banister of Tunbridge Wells, he was born at Blundellsands on April 3, 1880, and from Merchant Taylors' School, Crosby, Lancashire, went to Jesus College, Cambridge, and gained honours in the Natural Sciences Tripos of 1901. He then entered as a medical student at Charing Cross Hospital, and after taking his M.A. qualified as L.S.A. in 1906; two years later he graduated in medicine at Cambridge, proceeding M.D. in 1909. He obtained the F.R.C.S.Ed. in 1913, and was elected a Fellow of the Royal College of Physicians of London in 1928, having held the membership since 1910. At the foundation of the British College of Obstetricians and Gynaecologists in 1929 Banister was one of its first Fellows, and he became later a member of the Council. His career in that specialty began in the post of resident obstetric officer at Charing Cross Hospital in 1907 after he had been house-surgeon and house-physician there. This was followed by experience as registrar and pathologist at Queen Charlotte's, registrar at the Chelsea Hospital for Women, and obstetric registrar and tutor at Charing Cross, and afterwards as a member of the visiting staff of all three institutions. He was also gynaecologist to the Prince of Wales's Hospital, Tottenham, from 1912 to 1924. At various times he examined in midwifery and diseases of women for the Universities of London, Cambridge, and Aberdeen; for the English Conjoint Board and for the Central Midwives Board. He served in France and Egypt during the war as *médecin-en-chef*, Anglo-French Hospital, Le Tréport, and as surgical specialist, No. 17 British General Hospital, Alexandria. Besides his long association with three large London hospitals Banister was honorary gynaecologist to the Northwood Memorial Hospital and the Norwood Cottage Hospital, and obstetric surgeon to the Florence Nightingale Hospital in Lisson Grove. At the Bath Meeting of the British Medical Association in 1925 he served as honorary secretary of the Section of Obstetrics and Gynaecology, and ten years later was vice-president of the same section at the Melbourne Meeting; he had also been vice-president of the Obstetrical Section of the Royal Society of Medicine. In addition to many papers in the medical journals Banister was part-author of *Queen Charlotte's Textbook of Obstetrics*, and author of a *Manual for Midwives* which has gone through several editions.



At the memorial service in St. Martin-in-the-Fields on April 20 the Council of the British Medical Association was represented by Sir Ewen Maclean, President of the British College of Obstetricians and Gynaecologists.

Mr. Victor Bonney writes:

The death of John Bright Banister deprives the profession of a fine gynaecologist and obstetrician and a most genial and lovable man. He and I first became acquainted in 1909 when he came to Chelsea Hospital for Women as registrar. Those who only knew him of later years will be surprised to learn that at that time he was a quite slender youth looking less than his age. His duties as registrar were so well carried out that when a vacancy on the honorary staff occurred in 1913 he was elected junior assistant surgeon. The war came shortly afterwards, and during those troublous years I saw but little of him as our paths diverged; but after it was over and the honorary staff had come together again there began that long period of colleagueship on which I shall always look back with pleasure.

Besides being on the staff of Chelsea Hospital for Women, Banister was also attached to Charing Cross and Queen Charlotte's Hospitals and other smaller institutions, and his reputation steadily grew until he became one of the best-known exponents of gynaecology and obstetrics in Great Britain. As a surgeon he was gifted with what is sometimes called "a beautiful pair of hands," dexterous and gentle, with the result that he carried through the most severe operations with a minimum of shock to his patient. By temperament he was always cool and steady, difficulties did not discourage him, and the unforeseen left him unvexed. Beyond his professional attainments he will be missed for his personal qualities of good humour, kindness, and generosity; no man has ever been freer of envy and uncharitableness. Finally, I would pay tribute to his fine courage which enabled him, knowing the menace, to carry on steadfastly till the end.

Two junior colleagues (F. C. and C. D. R.) write:

An inspiring leader has been called from our midst at a time when our profession is in serious need of guidance. "J. B." was a great man and a very great gentleman. There are many of us who will sorely miss his personal encouragement, his wisdom, and his ready sympathy. He never spared himself in working for others, although the calls upon his time and energies were unbounded. His capacity for generous endeavour seemed unlimited, and in every situation his control was perfect. It is not long since he himself quoted Shelley's lines in writing of his old chief, Arthur Giles:

> "Man who man would be
> Must rule the empire of himself; in it
> Must be supreme, establishing his throne
> On vanquished will, quelling the anarchy
> Of hopes and fears; being himself alone."

And now it falls to our sad lot to reflect that *our* old chief was so animated throughout his honourable career. It is often said of a man who is dead that he never spoke ill of anyone. In the case of Banister this is literally true, whatever the conditions. Nevertheless he was a shrewd though merciful judge of human nature. Perhaps he suffered fools too gladly. For that he will be rewarded in the hereafter; but tolerance is a virtue that is apt to take its toll on earth. However overworked he may have been—and at times he must have felt desperately tired—he always took the trouble to understand people and

their moods, and to encourage every individual with whom he came in contact, whether an exacting patient or an argumentative colleague. In this respect gynaecological and obstetric practice is a particularly trying pursuit: reason alone rarely prevails. Quite apart from his technical skill, he was a man of profound clinical judgment; he had insight and that flair, born of imagination and experience, which is given to very few in these days of medical confusion. He was an inspiring teacher and a remarkably fair examiner; beyond that he was a healer in the very best sense of the word. This is a rare combination. Banister's advice and opinion will be sorely missed in the council chamber of the British College of Obstetricians and Gynaecologists and the Central Midwives Board, and in the Court of the Society of Apothecaries. He exercised his great talents in many capacities; wherever he served, he served with the utmost distinction and with all his heart and soul. Some of us will feel his loss most keenly at the Chelsea Hospital for Women, where, as senior surgeon, an ideal chairman, and a never-failing friend, he ruled and directed with dignity and an entire absence of friction. "J. B." was a good and sincere Mason, an officer of Grand Lodge. There are thousands within and without the ranks of Freemasonry who will mourn his death.

[The photograph reproduced is by Elliott and Fry, Ltd.]

J. G. COOKE, O.B.E., M.B., CH.B.

By the death of Dr. John Galwey Cooke, at the age of 78 years, Londonderry and the North of Ireland generally has lost a medical man of outstanding ability and personality. Dr. Cooke belonged to an old South of Ireland family, his father, the Rev. Ambrose Cooke, being rector of Thomastown in Co. Kilkenny. He received his medical education at Trinity College, Dublin, where after receiving the degree B.A. he graduated in medicine in 1887 with the degrees of M.B., Ch.B. After acting as house-surgeon for some time and obtaining the L.M. of the Rotunda Hospital he accepted the post of resident assistant surgeon to the Londonderry City and County Infirmary under the late Sir William Miller. On the death of Sir William Dr. Cooke was appointed surgeon to the hospital—a post he filled with distinction until his resignation in 1920.

He was always keenly interested in his profession, and took an active part in everything pertaining to its welfare. He was a Fellow of the Royal Academy of Medicine in Ireland and an ex-president of the Londonderry Medical Society. He was deeply interested in the affairs of the British Medical Association, having acted as honorary secretary to the Derry Division for over thirty years and having been a president of the former Ulster Branch, and in earlier years secretary, vice-president, and president of the Londonderry and North-West of Ireland Branch. It was during the great war that Dr. Cooke's energy, organizing ability, and sympathy got full scope, for during this period shipwrecked and injured sailors were constantly being brought to the hospital in Derry for treatment and care. For the magnificent work he did so freely and generously at this time he received the O.B.E.—an honour to which he was well entitled.

With his passing yet another of the good old school of doctors has gone, a type that is, unhappily, rapidly diminishing. Dr. Cooke will always be remembered by those who were privileged to be numbered among his friends for his kindness, his courteousness, and his genuine sympathy. He is survived by his sister, to whom the sympathy of a large circle is extended.

W. H. DOLAMORE, F.R.C.S., L.D.S.

We regret to announce the death on April 19, at the age of 74, of Mr. William Henry Dolamore, a distinguished member of the dental profession who did much to strengthen its position and increase its value to the public. Entering as a student at the Royal Dental Hospital, Leicester Square, he won the Saunders scholarship in 1888 and obtained the L.D.S. He then studied medicine at St. Mary's Hospital, and after qualifying M.R.C.S. and L.R.C.P. in 1892 was appointed dental surgeon to the London Hospital. He was a member of the staff of the Royal Dental Hospital for more than thirty years, and returned to St. Mary's Hospital as dental surgeon. From 1912 to 1922 he was a member of the Board of Examiners in Dental Surgery of the Royal College of Surgeons of England, and in recognition of these and many other services he was elected F.R.C.S. in 1933. He had also been extern examiner in dental surgery for the Universities of Liverpool and Leeds. Mr. Dolamore did invaluable work early in the first decade of the present century as honorary secretary of the British Dental Association, and in 1915–18 was president. When the Dental Board of the United Kingdom was set up in 1921 under the Dental Act of that year the Minister of Health appointed him a member, and three years later, when that office lapsed, he was elected to the Board by qualified dentists in England and Wales, retiring in 1934. Throughout the whole period of thirteen years he was treasurer of the Dental Board and an additional member of the General Medical Council under the Dentists Act, 1921, appointed by the Privy Council. Mr. Dolamore joined the British Medical Association in 1895, and was vice-president of the Section of Odontology at the Annual Meeting in London in 1910.

Supplementing our obituary notice of Dr. JAMES GODDING (April 16, p. 875), "T. B. B." sends the following tribute: I had every opportunity of appreciating his worth as a man and his very high degree of administrative ability when he was in command of No. 17 General Hospital, Alexandria, Egypt, in 1917 and 1918. I was A.D.M.S. at Alexandria throughout the war, and No. 17 was the largest of our general hospitals here. From an establishment of 2,040 beds it had expanded to 3,500 beds, and remained at that figure during the period of Godding's command. Never had I a moment's anxiety as to the successful, smooth, and efficient working of that very large unit while he was there. His training as a barrister and his medical work in various offices, including that of coroner at the Port of London, were invaluable in the administration of this very large and important war hospital. The G.O.C. Alexandria fully appreciated his value, and on several occasions when he had a difficult court-martial or a complicated court of inquiry on hand he would tell me that he must borrow Godding again to be president, as he was far the best man he had in his command for the job. It can have fallen to the lot of few medical men to command a battalion in France and Egypt with distinction, and then to administer a hospital of this size with such signal success as to earn four mentions in dispatches. I am sure that all members of the staff of No. 17 G.H. will join with me in mourning the loss of a true friend and a very exceptional personality.

Dr. HARRY STARK of Stoke Newington, London, N., died on April 19 as the result of septic blood infection contracted from a patient. He had been under treatment for several weeks at the Royal Northern Hospital. Born in 1902, Dr. Stark was a student at St. Bartholomew's Hospital and qualified M.R.C.S., L.R.C.P. in 1929. At Bart's he had been casualty medical officer and clinical assistant in the ear, nose, and throat department; he also served as house-physician, house-surgeon, and resident

medical officer at the Royal Waterloo Hospital for Children and Women. He was a member of the City Division of the British Medical Association, and had practised for some years at Stoke Newington Common, holding the posts of assistant school medical officer under the L.C.C., divisional medical officer for the British Home and Hospital for Incurables, and medical officer in charge of the Leytonstone Children's Homes. Dr. Stark's untimely death at the post of duty has caused grief to all his patients.

Mr. CHARLES EDWIN TRUMAN, M.R.C.S., L.D.S., for more than thirty years surgeon-dentist to the King's Household, died at Upton, Slough, on April 14, aged 88. His early education was at Geneva. From Eton he went to Caius College, Cambridge, to study medicine, and thence to St. Thomas's Hospital. He graduated B.A. in 1871, proceeded M.A. in 1874, and took the M.R.C.S. diploma in 1875; he then studied dentistry at the Dental Hospital in Leicester Square, becoming L.D.S. in 1881, and soon afterwards was appointed to the staff of that institution. Mr. Truman was also for many years surgeon-dentist to St. Thomas's, and on his retirement was elected to the consulting staff and made a governor of the hospital.

Dr. EDWARD ERNEST NORTH SURRIDGE, who practised for many years at Knutsford, Cheshire, died on Easter Sunday at Saffron Walden, aged 73. In recent years his sight had failed, so that he could not read or write. Dr. Surridge graduated B.A. at Cambridge in the Natural Sciences Tripos in 1886, and after further medical study at St. Bartholomew's Hospital took the M.B. and Ch.B. degrees in 1891. Before settling in general practice he was house-physician at Bart's and assistant house-surgeon to the Norfolk and Norwich Hospital. At Knutsford he had been medical officer to the Post Office and a member of the medical staff of the War Memorial Cottage Hospital. He joined the British Medical Association in 1892, and only gave up membership a few months ago.

News has been received in England of the death on March 28 in Cape Town, after a short illness, of Dr. HENRY BRYAN DENSHAM of Stockton-on-Tees, where he had practised for many years before retirement and was consulting surgeon to the Stockton-on-Tees Hospital. Dr. Densham was born in 1863, and received his medical education at Bristol and Edinburgh, graduating M.B., C.M.Ed. in 1887. He joined the British Medical Association in 1892, and had long been a member of the Stockton Division. When the Association held its Annual Meeting in Newcastle-upon-Tyne in 1921 he was vice-president of the Section of Proctology.

We regret to announce the death at Quinta do Val, Madeira, of Dr. MICHAEL GRABHAM, who was president of the Jamaica Branch of the British Medical Association in 1926–7, and had been a member for forty-seven years. He was the elder of the two sons of Michael Comport Grabham, M.D., F.R.C.P., the patriarch of Madeira, who died three years ago at the age of 95, and his mother was Mary Blandy, a member of the well-known family in that island. He studied medicine at Cambridge and St. Thomas's Hospital, graduating M.B., B.Ch. in 1891, and taking the English Conjoint diplomas in the same year. Dr. Grabham practised for many years in Jamaica before returning to Madeira.

The annual malaria control course for laymen (engineers, planters, etc.) will be held at the Ross Institute of Tropical Hygiene (Keppel Street, W.C.1), beginning Monday, June 27, at 10 a.m. It will be under Sir Malcolm Watson, director of the Institute, and will last five days. The course is free, and applications to attend should be sent in as early as possible to the organizing secretary at the above address.

Medico-Legal

IRREGULAR RESTRAINT OF DEFECTIVE

The certification of mental defectives does not often raise legal questions of the same magnitude as the certification of persons of unsound mind, but the liberty of the subject is safeguarded with equal strictness. The Mental Deficiency Act, 1913, provides that when a defective is certified the order under which he is sent to an institution or placed under guardianship shall expire at the end of one year from its date, unless it is continued in the way which is laid down. At the end of the year the Board of Control considers the medical reports on the case and may make an order which will be valid for another year. After that a succession of orders may be made, each covering five years. A recent decision by the Court of Appeal[1] lays down that these periods must be construed strictly, and that if an order is not renewed within the period of its operation the renewal is invalid.

A mental defective was certified on June 11, 1929. On June 23, 1930, a continuance order was made, and in 1931 another continuance order was made on June 29, which purported to continue the order till June 24, 1936. Another order was made on July 6, 1936.

He applied to the Divisional Court of the King's Bench Division for a writ of *habeas corpus*, alleging that he had been unlawfully restrained since June 24, 1931, because on that date the order under which he was restrained expired, and the continuance order made on June 29 could not have any effect. The Divisional Court would not grant the writ, but the Court of Appeal decided that it should be granted. Lord Justice Slesser, in giving the judgment of the court, said that the Act seemed unambiguous in its terms. The language was not such as to permit any consideration of the convenience or inconvenience which might be felt in operating the Act by the Board of Control. The Act gave no power to make an order for more than a year. The right time for the continuance order to be made would have been June 23, 1931. For the five or six days afterwards, if the detained man had walked out of the institution no one could have pointed to any authority under which he could properly have been detained. It was impossible to say that he was validly detained, because no order had been made in 1931 within the period laid down by the Act. Another reason for allowing the appeal was that the Commissioner who under the Act had to satisfy himself that the appellant was mentally defective did not come to his final decision until July 7, 1931. Lord Justice Clauson and Mr. Justice Goddard agreed. The Attorney-General, who had appeared for the Board of Control, said that Mr. Winterflood had been released on licence, and was not therefore now being detained.

The Services

INDIAN MEDICAL SERVICE DINNER

The annual dinner of the Indian Medical Service will be held at the Trocadero Restaurant, London, on Tuesday, June 14, at 7.15 p.m., when Major-General E. W. C. Bradfield, C.I.E., O.B.E., the Director-General, I.M.S., will preside. Tickets may be obtained from the honorary secretary, Major Sir Thomas Carey Evans, Hammersmith Hospital, Ducane Road, W.12.

ARMY MEDICAL SERVICES

Colonel O. W. McSheehy, D.S.O., O.B.E., late R.A.M.C., has been appointed Deputy Director-General, Army Medical Services, War Office, vice Colonel F. Casement, D.S.O., late R.A.M.C., who has been promoted to Major-General.

[1] R. *v.* Board of Control, ex parte Winterflood. *Times*, April 9, 1938.

Universities and Colleges

UNIVERSITY OF OXFORD

The following notice was published in the *Oxford University Gazette* of April 20.

FIRST EXAMINATION FOR THE DEGREE OF B.M.

The Board of the Faculty of Medicine gives notice of the following changes in the regulations for human anatomy:

(1) (*Examination Statutes*, 1937, p. 318) for "Every candidate for the Examination in Human Anatomy . . . whole body once" substitute "Every candidate for the Examination in Human Anatomy must produce a certificate, signed by Dr. Lee's Professor of Anatomy or by his deputy, showing that he has dissected the whole body once, and that he has attended a course of embryological histology."

(2) For the present form of Certificate I (p. 321) substitute

"i. PRACTICAL HUMAN ANATOMY.

I certify that .....has dissected the whole body once, and that he has attended a course of embryological histology at .....from.....to.....

Signature: Name:*
Qualification:
Address:
Official Position:
Date:

* This Certificate must be signed by Dr. Lee's Professor of Anatomy or by his deputy."

The above changes will come into operation on October 1, 1938, except that, until the end of December, 1939, the Board will be prepared to exempt from the requirement of having attended a course of embryological histology any candidate for whom it is satisfied that the requirement constitutes a hardship.

UNIVERSITY OF LONDON

A public lecture, on "Some Aspects of the Heart Sounds in Normal and Pathological Conditions," will be given by Dr. E. Braun-Menendez, director of circulatory investigations, Institute of Physiology in the Faculty of Medical Sciences, Buenos Aires, in the department of physiology, pharmacology, and biochemistry of University College, Gower Street, W.C., on Tuesday, May 3, at 5 p.m. The chair will be taken by Professor C. Lovatt Evans, F.R.S. The lecture is open, without fee or ticket, to students of the University and others interested in the subject.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The eighth John Mallet Purser Lecture will be delivered by Sir Henry Dale, F.R.S., Director, National Institute for Medical Research, Hampstead, London, on Wednesday, May 4, at 5 p.m. in the physiology theatre. The subject of the lecture will be "Chemical Agents Transmitting Nervous Excitations." The Provost of Trinity College will take the chair.

UNIVERSITY OF GLASGOW

A graduation ceremony was held on April 23, when the following degrees, among others, were conferred:

M.D.—*J. C. Dick, *T. J. Jones, *W. T. W. Paxton, †H. Gillies, †Margaret B. MacLean, ‡F. E. Crawley, ‡W. Morton, ‡R. H. Wiseman, W. W. Ballardie, J. A. Carson, Alice E. Dickie, S. Dunn, Mary G. Gorrie, J. E. Rankine, L. G. Scoular, W. Thomson (*in absentia*).

M.B., CH.B.—‡J. F. B. Wyper, ‡J. Green, ‡H. Brash, ‡P. McKenzie, J. Alcorn, D. J. S. Armstrong, R. B. Bell, R. A. Blair, W. K. N. Brown, D. R. G. Buchanan, Etheldreda Cadas, Charlotte B. Clark, Rhoda M. E. Clark, C. Cohen, W. C. Colville, J. Conner, R. W. Davidson, S. L. Davidson, Barbara S. Dawson, Muriel J. W. Dobbin, R. B. Dobson, J. W. N. Duerden, Constance I. Dunbar, A. M. Gardner, J. M. W. Gibson, T. A. Goodwillie, J. S. Gordon, Margaret T. Graham, A. F. Granger, J. Hammerton, M. B. Hay, A. G. Hegarty, S. B. Hendry, Alice M. Insh, W. M. Jamieson, W. Johnston, Mrs. Margaret Lavery, I. G. Lennox, S. B. Levy, D. C. Lillie, J. C. P. Logan, J. M. MacCormack, I. S. McCormick, D. MacInnes, Margaret McKay, F. Y. McKendrick, J. M. McKillop, F. C. McLaren, M. McLearie, J. G. McMenemy, Adaline N. Miller, J. P. Monie, A. S. Morrison, C. G. Nairn, D. Neville, J. A. O'Connor, H. Paterson, J. St. C. Polson, R. S. Rankin, W. M. Robinson, A. Roy, R. N. Rutherfurd, Agnes L. Scott, T. Semple, Chang-Yui Shu, R. N. Sinclair, Marion C. Steven, J. M. Sword, Winifred J. Symington, A. L. Taylor, A. McL. Thomson, D. A. Thomson, L. Tobias, M. Urie, H. G. J. van Bavel, D. L. Waddell, J. C. Walker, J. Weir, J. White, M. D. Winning, D. W. Zahn.

* With honours. † With high commendation.
‡ With commendation.

The following prizes, among others, were awarded:

UNIVERSITY PRIZES.—Bellahouston Gold Medals: E. D. Cooper, D. P. Cuthbertson. Captain H. S. Ranken, V.C., Memorial Prize: W. P. Weir and D. G. Wright (equal).

SPECIAL CLASS PRIZES.—Surgery—Macleod Gold Medal: J. W. Chambers.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting on April 4, with Dr. John Henderson, president, in the chair, Santosh Lal Robert, M.R.C.S., L.R.C.P., D.T.M., India, was admitted a Fellow of Faculty.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the requisite examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. and S.Glas.:

H. K. Abbas, L. Ballon, B. G. Barlow, J. Brimberg, G. Buchanan, F. G. Chung, Ruth F. Conway, J. Cross, Else A. d'Amian, D. Engel, Hildegart Fischer, W. D. Gilmour, Margot Goldschmidt, H. W. Gray, W. Grobin, Margaret Heller, R. L. Hill, H. Jacks, J. Johnston, R. St. J. R. Johnston, R. Kahane, S. J. Kopet, I. Kotzin, I. D. M. B. Maclurkin, M. MacLean, S. Mayer, T. R. W. Millar, P. Nathan, H. Nelson, D. Neville, Else Paneth, Else Perls, S. L. Pollock, E. L. Rees, A. S. T. Said, C. A. Smith, H. H. Teitelbaum, L. Toporoff, J. L. Trainer, M. Urie, G. C. Wainwright, J. C. Young.

Medical Notes in Parliament

In the House of Commons on April 26 the Chancellor of the Exchequer, in opening the Budget, briefly referred to the medicine stamp duty. He said that a committee of the House which considered this subject made a valuable report last year, but it had not yet been possible to arrive at conclusions on all the complex issues involved. It was his intention that a decision should be reached before next year's Finance Bill.

Sir John Simon proposed that the general rate of income tax should be increased by 6d. to 5s. 6d. in the £, the rate on the first £135 remaining at the present level of 1s. 8d. He also proposed an increase to 9d. a gallon in the petrol tax on light hydrocarbon oils and on power alcohol and also on heavy oils used in road transport. The tea duty was increased by 2d. a pound. Resolutions giving temporary authority for these imposts were carried by the House the same night.

London Hospitals and A.R.P.

On April 26 Colonel NATHAN asked the Home Secretary what directions had been given, or were contemplated, for the information of the general and special hospitals in London as to the measures they should take for dealing with patients and the functions they were desired to fulfil in the event of air raids. Mr. GEOFFREY LLOYD replied that instruction in the methods of dealing with gas casualties were being given to the medical and nursing staffs of London hospitals as part of the Home Office scheme of medical anti-gas instructions. A handbook on the structural protection that could be arranged in hospitals for the additional safety of staff and patients would shortly be issued. As regards the last part of

this question this must await the completion of the survey which is being undertaken by the Minister of Health.

Colonel NATHAN said he had a letter from the Air Raid Precautions Department of the Home Office stating that pending the completion of the survey of hospital accommodation throughout the country it was not possible definitely to allocate to individual hospitals the parts they might be called upon to take. That letter was addressed to a hospital adjacent to the House of Commons, and was dated May 19.

Mr. LLOYD: We must have a little further information. I do not think it will be necessary for the survey to be completed all over the country before dealing with the London hospitals.

Sir FRANCIS FREMANTLE suggested that instruction on medical work in air raids should be given at the medical schools.

Medical News

The gold medal of the Royal Society of Medicine has been awarded to Mr. Wilfred Trotter, F.R.S., Director of the Surgical Unit at University College Hospital. This is the seventh award of the medal, which is given triennially to a "scientist, man or woman, who has made valuable contributions to the science and art of medicine." The previous holders of the medal have been Sir Almroth Wright, Sir F. Gowland Hopkins, Dr. J. S. Haldane, Sir Henry Head, Sir Thomas Barlow, and Sir Archibald Garrod.

The Manson Medal of the Royal Society of Tropical Medicine and Hygiene has been awarded to Major-General Sir Leonard Rogers, K.C.S.I., C.I.E., F.R.S., I.M.S. (ret.), and will be presented at the annual general meeting of the Society on June 16. The medal is awarded triennially "to the living author of such work in any branch of tropical medicine or tropical hygiene as the council may consider to be deserving of the honour."

A special lecture describing the anti-leprosy campaign in Brazil will be given in the main lecture theatre of the London School of Hygiene and Tropical Medicine (Keppel Street, Gower Street, W.C.) to-day (Friday, April 29) at 5 p.m., by Dr. H. C. de Souza-Araujo, secretary of the International Centre of Leprology in Rio de Janeiro. All interested are invited to attend.

A sessional meeting of the Royal Sanitary Institute will be held at Cardiff City Hall on Friday, May 6, at 5 p.m., in conjunction with the Welsh Branch of the Society of Medical Officers of Health and the South Wales and Monmouthshire Centre of the Sanitary Inspectors' Association, when discussions will take place on "The First Municipal Asthma Clinic," to be opened by Dr. D. A. Williams, and on "The Place of the Public Health Department in Relation to the Council Housing Estates," to be opened by Mr. J. A. Glover.

The Oxford Ophthalmological Congress will open this year on the evening of Wednesday, July 6, at Keble College, and the scientific sessions will be held on the three following days. On July 7 Dr. Bernard Chavasse will introduce a discussion on Ocular Palsies. The Doyne memorial lecturer is Professor A. von Szily, of Münster, whose subject is The Contribution of Pathological Examinations to the Elucidation of the Problems of Cataract. A number of papers have been promised by other ophthalmologists from abroad, and Dr. H. M. Traquair will open a discussion on Anaesthesia in Ophthalmic Surgery. Applications for membership forms and for full details of the Congress should be sent to the honorary secretary and treasurer, Dr. F. A. Anderson, 12, St. John's Hill, Shrewsbury.

The ninth medical conference of Aix-les-Bains will be held on May 22, when a paper will be read on Sciatic Neuralgias and their Treatment by Dr. Jacques Forestier. Further information can be obtained from Dr. Lelong, Société médicale d'Aix-les-Bains, Rue de Liège, Aix-les-Bains.

A bronze medal, known as the Heberden Medal, will be awarded annually to a registered medical practitioner who, in the opinion of the referees appointed by the Heberden Society, has carried out the best work in the British Isles on the investigation of the rheumatic diseases. The recipient will be invited to deliver the Heberden Lecture, which should comprise a review of the work carried out for the award of the medal. The first award will be made in January, 1939, by the president of the society, Dr. Matthew Ray, with Dr. C. W. Buckley and Dr. Mervyn Gordon, F.R.S. Published work should be submitted in the first place to the secretary, Dr. Kenneth Stone, 58, Chesterfield House, Chesterfield Gardens, London, W.1.

We are informed that, as the president of the West Kent Medico-Chirurgical Society has left London, there will be no president's address this year. Mr. Myles L. Formby will give an address on "Some Common Oto-laryngological Conditions: Aids to Their Diagnosis and Treatment" before the Society at the Miller General Hospital, Greenwich, S.E., on Friday, May 13, at 8.45 p.m.

Fifty years ago, on May 5, 1888, Sir J. Spencer Wells, Bt., F.R.C.S., published in the *British Medical Journal* "Notes on a Visit to Pistyan," and reprints of his paper are still shown to visitors at that famous Czechoslovak spa. A much later account of the Pistany bathing establishment, with its hot mud baths, appeared in the *British Medical Journal* of June 4, 1927.

On Monday, April 25, Lord Derby opened the new *x*-ray department and the extensions to the out-patient department at the Christie Hospital and Holt Radium Institute, Manchester. The new treatment equipment consists of four *x*-ray tubes of the continuously evacuated type, each operating at 250,000 volts. The control desks are situated outside the treatment room.

The Middlesex Hospital Medical School's new athletic ground at Chislehurst has been presented by Sir Edward Meyerstein, and will be available for games on April 30. It consists of over eighteen acres, and a large pavilion with two floors is nearing completion. This new ground will provide students with increased facilities for sport. It is situated on the "Foxbury" site, and for those not going by road there is a frequent service of trains to Chislehurst from Charing Cross, Cannon Street, and London Bridge stations, and the ground can be reached by a bus service passing Chislehurst and Bickley stations.

The Listerian Society of King's College Hospital Medical School is holding a "Medico-Legal Trial" on Wednesday, May 4, at 8.15 p.m., presided over by His Honour Judge Earengey.

In our advertisement columns this week the Staffordshire Mental Hospitals Board invite applications for the appointment of Medical Superintendent to the County Mental Hospital, Stafford. The salary is £1,100 per annum.

Dr. W. E. Bennett, who has completed just over half a century as medical officer of health for Otley, was presented on April 21 with a gold fountain pen and pencil by present and past members of the Council and officials in recognition of his long service.

Sir James Crichton-Browne, F.R.S., who died on January 31, aged 97, left estate valued at £103,078, with net personalty of £102,221.

The Grenfell Association of Great Britain and Ireland (66, Victoria Street, S.W.1) announces that a sale in aid of Sir Wilfred Grenfell's medical work in Labrador and Northern Newfoundland will be held at 72, Drayton Gardens, S.W.10, on May 25 and 26, from 10 a.m. to 10 p.m. each day.

Mr. and Mrs. Enoch Haughton of Stoke-on-Trent have given £25,000 to the North Staffordshire Royal Infirmary for the building of a new medical block with the ancillary services. The block will have twenty-five beds for men and twenty-five for women, and the nurses' home may be extended.

Dr. H. C. Squires has been appointed Consulting Physician to the Sudan Government.

A severe epidemic of small-pox has recently occurred in Hawaii.

No. 15

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 16, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 125 great towns (123 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns (9 in 1937) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	30	6	10	2	4	24	4	17	1	1		
Deaths		2	—				3	5				
Diphtheria	1,056	133	192	54	30	1,019	102	197	32	33	962	165
Deaths	29	2	4	3	1	26	3	2	2	—		
Dysentery	76	19	33		—	18	4	6		—		
Deaths			1	—	—			—	—	—		
Encephalitis lethargica, acute	5	—	—		—	6	2	—		—		
Deaths		1	—				—	—				
Enteric (typhoid and paratyphoid) fever	29	1	5	2	—	25	1	3	1	1	25	—
Deaths	1	—	—	—	—	—	—	1	—	—		
Erysipelas			44	10	2			74	9	6		
Deaths		1					1	—				
Infective enteritis or diarrhoea under 2 years												
Deaths	37	10	8	4	3	53	14	12	10	—		
Measles			724		24*			294		—		
Deaths	54	14	33	1	4	13	—	1	1	—		
Ophthalmia neonatorum	80	8	21		—	106	8	23		—		
Deaths												
Pneumonia, influenzal §	847	70	7	1	1	1,159	85	15	5	6	1,296	124
Deaths (from Influenza)	52	4	5	—	1	73	10	4	7	2		
Pneumonia, primary			191	9				185	10			
Deaths		22		20	13		18		27	10		
Polio-encephalitis, acute	—	—				—	—					
Deaths		—					—					
Poliomyelitis, acute	3	1	1		—	8	1	2		—		
Deaths		—	—				—	—				
Puerperal fever	4†	4	5			33	4	18	2			
Deaths		1‡					2‡					
Puerperal pyrexia	156	14	20		4	137	17	18		—		
Deaths												
Relapsing fever	—	—			—	—	—	—		—		
Deaths								—				
Scarlet fever	1,841	166	356	91	78	1,678	188	355	78	36	1,806	231
Deaths	6	—	1	—	1	3	—	1	1	—		
Small-pox	—	—	—		—	—	—	—		—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths			—	—	—			—	—	—		
Whooping-cough			67		11			609		10		
Deaths	21	2	—	1	—	24	5	16	6	—		
Deaths (0-1 year)	373	62	73	32	19	407	75	76	47	16		
Infant mortality rate (per 1,000 live births)	62	51				67	62					
Deaths (excluding stillbirths)	4,680	848	635	188	147	4,949	925	657	245	135		
Annual death rate (per 1,000 persons living)	11.5	10.7	13.0	12.7	13.0	12.3	11.5	13.4	16.7	12.9		
Live births	5,919	1,030	878	305	233	6,898	1,325	977	382	270		
Annual rate per 1,000 persons living	14.6	13.0	17.9	20.6	20.7	17.1	16.5	20.0	26.0	25.8		
Stillbirths	258	51				299	46					
Rate per 1,000 total births (including stillborn)	42	47				42	34					

* 24 cases in Belfast alone.

† After October 1, 1937, puerperal fever was made notifiable only in the Administrative County of London.

‡ Deaths from puerperal sepsis.

§ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPIDEMIOLOGICAL NOTES

Enteric Fever

There has been an increase of enteric fever in England and Wales during the week under review—29 cases being notified, as against 17 in the previous week and 25 in the corresponding week last year. The increase is largely due to the outbreak of paratyphoid fever in the Cardiff district, where 12 cases were notified: 10 in Cardiff itself, 1 in Merthyr Tydfil, and 1 in Llantrisant. Elsewhere notifications were widely scattered over England and Wales: 2 in Birmingham, 2 in Coseley (Staffs), and among the large towns 1 each in London, Birkenhead, Bristol, and Leeds.

Diphtheria and Scarlet Fever

Notifications of diphtheria dropped fairly steeply in England and Wales (London sharing in the decrease) and Eire, while small increases were reported from Scotland and Northern Ireland. The numbers for England and Wales are still in excess of the median value for the last nine years, while those for London are considerably less. In all four countries scarlet fever appears to be less prevalent than in the previous week, but in England and Wales and in Eire it is more prevalent than in the corresponding week last year. In England and Wales the number is greater than the median value for the last nine years, but in London it is less.

Measles and Whooping-cough

In the 125 Great Towns in England and Wales there were 54 deaths from measles, compared with 56 in the previous week; of these 14 (15) occurred in London, 4 (4) in Manchester, 4 (1) in West Hartlepool, 2 each in Kingston-upon-Hull, Crosby, Bolton, Birkenhead, Reading, Portsmouth, Dagenham. The figures in parentheses refer to the numbers in the previous week. The measles epidemic in London appears to be subsiding: 996 cases were reported from the L.C.C. elementary schools, compared with 1,895 and 2,095 in the two immediately preceding weeks. The average daily admissions to the L.C.C. fever hospitals dropped from 78 to 74, while the number of cases of measles under treatment in these hospitals on April 15 was 2,220, compared with 2,241 on April 8 and 2,339 on April 1. On the same day there were under treatment in the L.C.C. fever hospitals 1,140 (1,160) cases of diphtheria, 802 (843) cases of scarlet fever, 264 (291) cases of whooping-cough. The figures in parentheses refer to the numbers recorded in the previous week. Notifications in the eleven metropolitan boroughs in which measles is notified were, for the week ended April 16, 734 (833), distributed as follows: Battersea 92 (128), Bermondsey 42 (88), Finsbury 39 (27), Fulham 68 (41), Greenwich 82 (99), Hampstead 24 (55), Lambeth 162 (188), St. Pancras 94 (110), Shoreditch 26 (51), Southwark 60 (115), Stepney 45 (51). The figures in parentheses denote the numbers in the previous week. In Scotland 724 cases of measles were reported, compared with 1,044 in the previous week: the figures for Glasgow were 285 (549), Aberdeen 204 (81), Edinburgh 65 (65), Dundee 63 (179), Paisley 25 (42). The figures in parentheses denote the numbers recorded in the previous week. During the week under review there were 33 deaths from measles in the 16 principal towns of Scotland, compared with 23 in the previous week, of which 11 each occurred in Glasgow and Dundee, and 2 each in Edinburgh, Clydebank, Coatbridge, and Falkirk. In Northern Ireland 24 cases of measles were notified, all in Belfast, compared with 30 in the previous week. Four deaths from measles occurred in Belfast, 1 more than in the previous week. Whooping-cough appears to be on the increase in Scotland and Northern Ireland—67 compared with 42, and 11 compared with 4, respectively—but no deaths were reported. The number of deaths in England and Wales and London was practically the same as in the previous week.

Typhus

During the week ended April 2 there were in Algeria 82 cases of typhus (compared with 67 in the previous week), of which 65 occurred in Constantine and 16 in Algiers. During the week ended April 9 107 cases were reported in Egypt with 12 deaths, occurring both in the towns and in widely scattered districts. During the same week there were in Morocco 248 cases of typhus with 25 deaths; of these cases, 57 were in Chacuia (6 deaths), 33 in Casablanca (7 deaths), 29 in Rabat (4 deaths), 24 in Fez (1 death). During the same week there were 63 cases of typhus in Tunisia, widely scattered in the civil districts of the northern territories.

Psittacosis

At an inquest on April 20 on William James Sprunt, a relief keeper at the London Zoo, the jury found that Sprunt died from psittacosis contracted during the course of his employment. It was stated that blood tests on the four keepers who fell ill about the same time were negative for psittacosis. Apparently the source of infection was a consignment of parrots brought from South America and the West Indies by Lord Moyne. Those which did not die have since been destroyed. This is the first time that psittacosis has appeared in the Zoo for 100 years and the parrot house is to remain closed until the authorities are satisfied that the public run no risk on being readmitted. A leading article on psittacosis appeared in the *Journal* of April 2.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin;* telephone 62550 Dublin).

QUERIES AND ANSWERS

Income Tax

Death of Practitioner

"H. C. M." explains that his father was the proprietor of a sole practice up to his death on August 12, 1937. From that date to November 1, 1937, the practice was conducted by the executors, who employed locumtenents; since then "H. C. M." has carried on the practice as his own. The practice was assessed on the cash basis, and the income tax authorities are calling for particulars of the cash received (*a*) between January 1 and August 12, and (*b*) after August 12 to the present time, and also for a statement of debts still outstanding. Are these receipts liable for assessment?

*** In our view the position is as follows. As regards (*a*) the amount of the receipts is required to ascertain the

profits to the date of death, and should be supplied. From August 12 to November 1 the executors are liable in respect of the profits of that period—if the income tax authorities are willing to accept the amount of the cash receipts as the amount of the *gross* income of that period that is obviously convenient, but they can insist on the value of the gross bookings being taken if they desire, and that course is the one which is legally correct. From November 1 onwards "H. C. M." is personally liable, and should base his return on bookings and on cash receipts. It will be seen from the above that the only way in which cash received after January 1, 1937, can come into the calculation is for the special purpose of calculating the profits to August 12, 1937, and that cash received after that date does not affect the income tax figures. The deceased has been assessed in respect of his earnings up to April 5, 1937, and the only further liability of the executors is for the period to August 12, 1937. Any cash received after that date merely represents the in-gathering of profits on which tax has been paid, and is capital so far as the estate is concerned.

Retirement from Practice

"NEWCASTLE" inquires what further payments of income tax, if any, a practitioner will have to make if he retires at the end of 1938, after paying all tax due up to and including the July, 1938, payment.

*** The July, 1938, payment represents the final instalment of the tax assessable for the year to April 5, 1938. In such circumstances the practitioner will have to account for tax in respect of his earnings for the further period of nine months to December 31, 1938, and that tax will be due to be paid in January and July, 1939.

Motor-Car Depreciation

"MOTORIST" bought a car on March 25, 1936, for £325, and his running expenses, including insurance but not depreciation, for the two following years were £133 and £102 respectively. For insurance purposes the car was valued at £260 in March, 1937, and £160 in March, 1938. What can he claim?

*** It has to be borne in mind that the only depreciation allowable for income tax purposes is that arising by reason of wear and tear. In practice this is calculated in the case of motor cars at 20 per cent. of the written-down value, as shown below.

Value at April 5, 1936	£325	
Depreciation at 20 per cent...	£65	
Add statutory additional 10 per cent. ..	£7	
Allowance for 1936-7..		£72
Value as at April 5, 1937, £325–£65= ..	£260	
Depreciation at 20 per cent...	£52	
Add statutory additional 10 per cent. ..	£5	
Allowance for 1937-8..		£57
Value as at April 5, 1938, £260–£52=.. ..	£208	

The claim for travelling expenses should therefore be:

1936-7, £133+£72=£205
1937-8, £102+£57=£159

If, however, the car has been used for non-professional purposes some restriction of these deductions will be necessary.

LETTERS, NOTES, ETC.

Pathology of Robert Burns

Dr. WALTER R. BETT writes: The obituary of Sir James Crichton-Browne in the *Journal* of February 5 referred to the fact that his mother was highly gifted and that few knew their Burns as she did. In this connexion it may be worth while noting that some ten years ago Sir James wrote a small book of 92 pages, published by Hodder and Stoughton (undated), with the title *Burns from a New Point of View*, in which he advanced the theory that the poet was not a confirmed drunkard but a painful example of the neglect of rheumatism in early life. His biographers, particularly the "arch-calumniator" James Currie, who was an ardent prohibitionist and antipathetic to Burns the man though not to the poet, insist that his death was caused by exposure through lying asleep in the snow in a drunken condition. Sir James believes that he fainted from heart failure and collapsed just outside the inn after a moderately convivial evening.

Keesing's Medical Digest

Still another attempt has been made to meet the demand of busy readers for potted information. There are many reasons for this demand: the bulk of medical literature in the world increases at an alarming pace each year; at the same time, in spite of the machine, those who do work seem to become busier and busier, and this is especially the case with medical men. All this makes it difficult for those who like to be up to date to keep themselves well informed of what is happening. *Keesing's Medical Digest* is an attempt to meet the needs of what must be an increasing number of medical men each year. It consists of short abstracts from well-known medical journals in different parts of the world, a diary for the current three months of the year, and, what should be a particularly valuable feature, an index which will be kept up to date from month to month. The whole is fitted with loose leaves into a stout cover which will slip quite easily into the coat pocket. This would seem to be a useful venture in medical journalism, and for a subscription of one guinea a year not a very expensive one. The publishers are Keesing's Medical Digest Ltd., 1, Regent Street, London, S.W.1.

A Bee-eating Sealyham

Dr. J. STEWART RICHARDS (Sussex) writes: I read with interest the annotation in the *Journal* of April 16 (p. 858) on bee venom for arthritis. Many of us have heard of, or know personally, patients who have submitted themselves to a course of bee stings for rheumatism, but the following case seems so exceptional that it is perhaps worth recording. The subject was a dog, a Sealyham aged 6. He was not markedly intelligent but of active habits, his main objectives in life being the pursuit of food, tennis balls, and rabbits. At one of my visits to his home he was quite disabled for any active exercise save a painful halting walk; his back and buttock muscles were very stiff and tender and obviously painful. The veterinary surgeon's diagnosis was "rheumatism," and mine, "fibrous rheumatism." The condition was attributed by his owner to a curious habit he had of sitting on a damp spot, or sometimes actually in water, to cool off the heat of the chase. The stiffness lasted for some months, but when I next saw him he had completely recovered. I asked for further information and was told that for a short time before his recovery he had been seen going round the flower beds snapping up bees and eating them. My informant was my niece, the owner of the dog, a dog-lover and an acute observer. Whatever effect the bee venom by mouth may have had on the disease, does not the coincidence of the bee-eating and the attack of rheumatism suggest some intuitive impulse in animals, or, shall I say, empirical knowledge of certain internal remedies for their disorders? In the matter of bee venom, have they anticipated the researches of the medical profession? Why do dogs so often resort to eating grass and that of the coarsest kind? Is it for constipation? Cows exhibit under certain conditions much appreciation of a lick of salt. A greedy dog I know, after unusual gorging, resorted to a sun-warmed stagnant pond and drank freely. Almost immediately he vomited copiously and seemed greatly relieved; the water was warm and foul enough to act as a potent emetic. I have not read any account of the spontaneous use by animals of internal remedies for their disorders, but perhaps this note may elicit information on the subject from some of your readers.

Fitness Wins

The National Fitness Council has recently issued a 64-page illustrated handbook entitled *Twenty-four Ways of Keeping Fit* (H.M. Stationery Office, 2d.). The illustrations are well chosen and should stir to activity even the most sluggish, and for those interested there is a list of twenty-two Area Fitness Committees.

Corrigenda

By a printer's error the first line of Dr. W. J. Hohmann's letter on the control of sulphanilamide therapy in the *Journal* of April 23 (p. 923) reads "You have twice been so good as to discuss in the paper. . . ." It should have read "With reference to Dr. A. J. Cokkinis's interesting paper. . . ."

Dr. F. H. JACOB, whose paper "Four Cases of Meningitis Treated with Prontosil" appeared in the *Journal* of April 23 (p. 887), writes to explain that the drug he used in these cases was prontosil album.